

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pa. Public Utility Commission	:	Docket Numbers
v.	:	R-2020-3019369
Pennsylvania-American Water Company	:	R-2020-3019371
	:	

Direct Testimony of
Scott J. Rubin

on Behalf of
the Pennsylvania Office of Consumer Advocate

September 8, 2020

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OCA IV-005	Rate increase for Port Vue customers in McKeesport
OCA IV-018	Allocation of stormwater-related costs
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Introduction

Q. Please state your name and business address.

A. My name is Scott J. Rubin. My business address is 333 Oak Lane, Bloomsburg, PA.

Q. By whom are you employed and in what capacity?

A. I am an independent consultant and an attorney. My practice is limited to matters affecting the public utility industry.

Q. What is the purpose of your testimony in this case?

A. I have been asked by the Office of Consumer Advocate (“OCA”) to provide an overview of this case from a public policy perspective, particularly in light of the COVID-19 pandemic affecting the world at this time. I also will introduce the OCA’s other witnesses who will address various aspects of the rate request filed by Pennsylvania-American Water Company (“PAWC” or “Company”). Finally, I will review and critique the Company’s cost-of-service studies (“COSS”), proposed rate design for residential customers, the need for PAWC to have separate stormwater rates, and the Company’s proposed Regionalization and Consolidation Surcharge.

Q. What are your qualifications to provide this testimony in this case?

A. I have testified on more than 200 occasions as an expert witness before utility commissions or courts in the District of Columbia, the province of Nova Scotia, and the states of Alaska, Arizona, California, Connecticut, Delaware, Illinois, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Mississippi, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, South Carolina, Washington, and West

1 Virginia. I also have testified as an expert witness before two committees of the U.S.
2 House of Representatives and various state and local legislative committees. I also have
3 served as a consultant to the staffs of four utility commissions, several national utility
4 trade associations in the United States, and state and local governments throughout the
5 United States. Prior to establishing my own consulting and law practice, I was employed
6 by the OCA from 1983 through January 1994 in increasingly responsible positions. From
7 1990 until I left the OCA, I was one of two senior attorneys in that office. Among my
8 other responsibilities in that position, I had a major role in setting the office's policy
9 positions on water and electric matters. In addition, I was responsible for supervising the
10 technical staff of the office. I also testified as an expert witness for the OCA on rate
11 design, cost of service issues, and policy matters.

12 Throughout my career, I developed substantial expertise in matters relating to the
13 economic regulation of public utilities. I have published articles, contributed to books,
14 written speeches, and delivered numerous presentations relating to regulatory issues. I
15 have attended numerous continuing education courses involving the utility industry. I
16 also have participated as a faculty member in utility-related educational programs for the
17 Institute for Public Utilities at Michigan State University, the American Water Works
18 Association, and the Pennsylvania Bar Institute. My complete curriculum vitae is
19 provided as Appendix A.

20 **Q. Do you have any experience that is particularly relevant to the issues in this case?**

21 A. Yes, I do. Over the years, I have testified concerning numerous types of regulatory
22 policy issues before utility commissions and legislative committees. Obviously, before

1 this year, I did not have experience recommending an appropriate regulatory response
2 during a global pandemic, but I believe my more than 35 years of experience in utility
3 regulation can provide some useful insights and recommendations. Recently, I submitted
4 testimony on the same topic in five other rate proceedings.

5 In addition, I have testified for many years in previous PAWC proceedings
6 concerning COSS, rate design, and tariff issues. I have considerable experience in the
7 field of COSS and rate design, particularly for water utilities. I have testified as an expert
8 witness on cost-of-service studies, rate design, and other tariff issues in dozens of water
9 and wastewater utility rate cases, as well as similar issues in numerous energy utility rate
10 cases. I also have worked as a consultant to local government entities on rate design
11 issues – both to assist government-owned utilities in designing rates and to help
12 government agencies obtain reasonable rates from their utility. I also served on the
13 editorial committee for the preparation of the major rate design manual for the water
14 utility industry, AWWA’s Manual M1: Principles of Water Rates, Fees, and Charges
15 (“M1 Manual”). My work on the M1 Manual was for the fifth edition, published in 2000.
16 The Manual is now in its seventh edition, published in 2017.

17 **Q. Do you have any other preliminary matters to address?**

18 A. Yes, there are two matters I would like to discuss about the focus of my testimony and
19 some of the terminology used. First, my testimony deals with regulatory policy issues.
20 Given the nature of public utility regulation, much of the public policy in this field is
21 contained in decisions by regulatory agencies and courts; or in statutes, ordinances, or
22 regulations. I may be citing or referring to these types of sources. This should not be

1 taken as a legal opinion (though I am qualified to provide expert testimony as a
2 regulatory attorney in Pennsylvania), but rather as sources supporting my expert opinion
3 concerning appropriate public policy and regulatory practice.

4 Second, I want to make clear at the outset that my testimony and analysis are
5 based on PAWC's proposed revenue requirement for the fully projected future test year
6 ("FPFTY"), which is calendar year 2021. To simplify my testimony, and in light of my
7 discussion about the appropriateness of a multi-year rate plan ("MYRP") at this time, my
8 testimony will not specifically discuss the COSS, revenue allocation, or rate design for
9 2022. Any adjustments or methodologies I propose for the FPFTY would apply equally
10 to 2022 if the Commission decides to consider a MYRP in this case.

11 Focusing on one test year at the utility's proposed revenue requirement is standard
12 practice for COSS, class revenue allocation, and rate design because it allows different
13 parties' recommendations to be compared on an "apples-to-apples" basis. This should not
14 be taken, however, as an endorsement of the Company's proposed revenue requirements.
15 Indeed, there are other OCA witnesses who discuss the accuracy of those proposals.

16 Summary

17 **Q. Please summarize your conclusions and recommendations.**

18 **A.** I summarize my conclusions and recommendations as follows:

- 19 • As a consequence of the pandemic devastating the health and economy of
20 the Commonwealth and the world, the Commission cannot rely on many
21 of the assumptions made in PAWC's filing. It also would not be just or
22 reasonable to impose a rate increase on customers at this time.

-
- 1 • I recommend that the Commission either reduce rates (as recommended by
2 OCA's other witnesses) or at a minimum deny any rate increase to PAWC
3 in this case.
 - 4 • I recommend the Commission reject PAWC's request for a multiyear rate
5 plan at this time. The Commission should determine base rates for water
6 and wastewater service in this case that will remain in effect until the
7 conclusion of the Company's next base rate proceeding.
 - 8 • I have corrected two minor errors in the water cost-of-service study
9 ("COSS") and made three other adjustments in that study. The result is a
10 reduction in the cost of serving the Residential class of approximately
11 \$815,000.
 - 12 • I strongly recommend that the Commission order PAWC to develop a
13 stormwater fee to collect stormwater-related costs in the three rate zones
14 with combined sewer systems ("CSS") (Scranton, McKeesport, and
15 Kane).
 - 16 • Given the inability to develop defensible stormwater rates in this case, and
17 the Company's improper commingling of stormwater and sanitary sewage
18 costs in its COSS, I propose that existing rates in the CSS rate zones
19 should be increased by an equal percentage (an "across the board"
20 increase).
 - 21 • I recommend the Commission implement the increases proposed by
22 PAWC in each of the Section 1329 wastewater rate areas, but not the
23 proposed rate reduction in Sadsbury.
 - 24 • I recommend the Commission reject the proposed Regionalization and
25 Consolidation Surcharge as being contrary to the public interest and
26 neither just nor reasonable.
 - 27 • I recommend the Commission permit a limited subsidy from Rate Zone 1
28 water customers to be paid to each Section 1329 rate area, but that the
29 subsidy should not compensate the Company for the full return on the
30 purchase price increment it paid over the net original cost of the property.
 - 31 • I support the Company's proposal to charge the same water Zone 1
32 customer charges for Residential customers with meters ranging from 5/8-
33 inches to 1-1/2 inches in diameter. I also agree that a Residential customer
34 charge (for 5/8-inch to 1-1/2-inch meters) of \$18.00 per month is
35 reasonable under the Company's proposed revenue requirement for the
36 FPPTY.

- For water Zone 5 (Steelton), I would have Residential customers with meters from 5/8-inches to 1-1/2 inches pay the same customer charge, but that charge would be \$14.58 per month. As part of that change in Steelton, I would eliminate the minimum usage allowance for Residential customers with meters larger than 5/8-inches, and reduce the minimum allowance for Residential 5/8-inch meter customers to 1,000 gallons per month. I propose that all Residential consumption above any minimum allowance in water Zone 5 should pay a rate of \$1.000 per 100 gallons.
- I support the Company's proposal to reduce the customer charges and eliminate the minimum usage allowances in water Zone 4 (Turbotville).
- I recommend that rates in wastewater Zone 3 (Scranton Area) should be increased by approximately 20%.
- I recommend the wastewater Zone 4 (Koppel) Residential customer charge should be decreased to \$24.00 per month (a 20% reduction) and the Residential volumetric charge should be increased by 50% to \$0.9750.
- In wastewater Zone 6 (McKeesport), I agree with setting the Port Vue customer charge equal to the wastewater Zone 1 customer charge of \$11.00 per month (or \$33.00 per quarter) and eliminating the minimum usage allowance. The volumetric charge for Port Vue customers, however, should be limited to a 40% increase, or \$1.393 per 100 gallons.
- If the Commission reduces the revenue requirement in rate zones that are being subsidized by water Zone 1 customers, then the change from the Company's FPFTY revenue requirement should be used first to reduce the water Zone 1 subsidy in proportion to the subsidy paid by each customer class under PAWC's proposal for the FPFTY. Any remaining reduction would be applied proportionally to the rates in the particular rate zone.
- Any change in the water Zone 1 revenue requirement should be spread among the customer classes in proportion to each class's cost of service under my COSS.

Purpose of this Case

Q. What is your understanding of the purpose of this proceeding?

A. As I understand it, the purpose of this case is to determine the "just and reasonable" rates for PAWC under Chapter 13, and other provisions, of the Public Utility Code.

Q. In your more than 35 years of experience with utility rate-setting, are there standards or criteria used to determine whether a rate is “just and reasonable”?

A. Yes. There are thousands of administrative and judicial decisions throughout the United States that interpret the phrase “just and reasonable” as it relates to utility rates. Without going into all of the nuances and jurisdictional differences that arise from those decisions, and without providing a legal opinion, I will provide my general understanding of how that phrase is used in the field of public utility ratemaking.

In general, we regulate the rates (and other terms of service) of public utilities because they are natural monopolies, meaning that it would be economically inefficient (more expensive) to have competing enterprises provide the service. It is often stated that regulation is a substitute for competitive market forces. At its core, regulation is designed to protect utility consumers from what otherwise would be the unfettered power of a monopoly to set prices and the conditions of service. In protecting consumers, however, regulators cannot confiscate the property of the utility’s investors. That is, regulators cannot tilt the scale so far in favor of consumers (for example by providing free service) that the utility’s investors are deprived of an opportunity to earn a reasonable return on their investment.

Importantly, though, regulation is not designed to insulate the utility or its investors from normal market forces, technological improvements, or general economic conditions. If market forces (such as technological change) result in significant reductions in the demand for service, then the utility may not be able to recover its costs. That is not a failure of regulation, but a natural evolution of the market -- businesses fail

1 if they cannot keep up with changes in consumers' preferences or respond to
2 technological innovations.

3 Similarly, if economic conditions change such that rates become unaffordable to
4 many customers, rates may need to be reduced in order to remain "just and reasonable"
5 from the perspective of customers.

6 **Q. Is there a general framework in which to evaluate whether a rate is just and**
7 **reasonable?**

8 A. Yes, regulators, analysts, and courts often speak of a "zone of reasonableness." In setting
9 rates, regulators should attempt to balance the interests of all relevant sectors of the
10 public. This includes the utility's investors, the utility's officers and employees, the
11 customers (recognizing that different customer classes also have different interests), and
12 local governments whose residents are served by the utility. Ideally, rates should be set
13 within a "zone of reasonableness" which represents a range within which all of the
14 relevant interests intersect. To help explain the concept, I have provided Figure 1 which
15 illustrates this zone of reasonableness as a simplified diagram, showing only consumers
16 as a whole and investors.

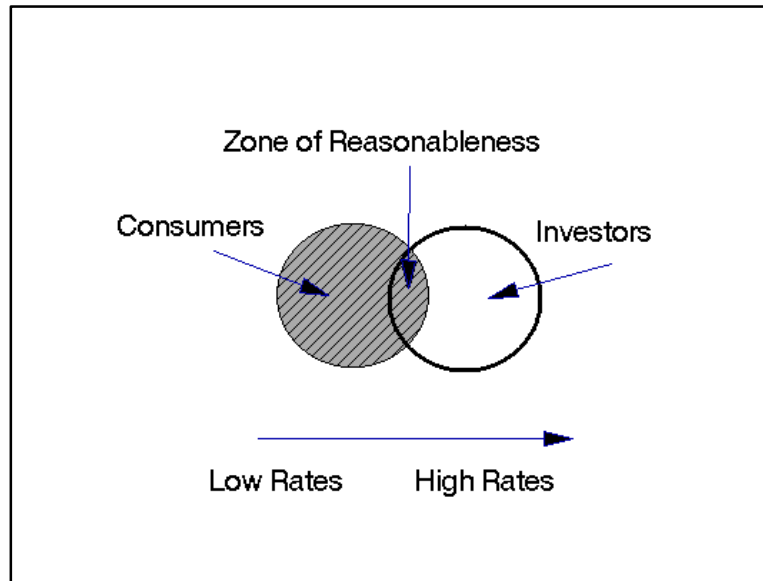


Figure 1. Traditional Zone of Reasonableness

In this example, which illustrates the situation in which rate regulators usually find themselves, there is an overlap between the interests of consumers and investors. That is, there is a range of rates that consumers are willing and able to pay (ranging from zero at the low end to a rate which is so high that they can no longer afford utility service) and a range of rates which will provide investors with what they consider to be a reasonable return on their investment (presumably ranging from something more than the risk-free rate of return up to a return well above that which the market provides to similar-risk investments). In this illustration, these two ranges overlap. This provides the regulator with a range within which it can set rates that still meet the needs of both consumers and investors. The size and relative position of the range may change, but we are used to having at least a partial convergence of these ranges.

It is possible, however, that the interests of investors and consumers might diverge. This divergence is illustrated in Figure 2.

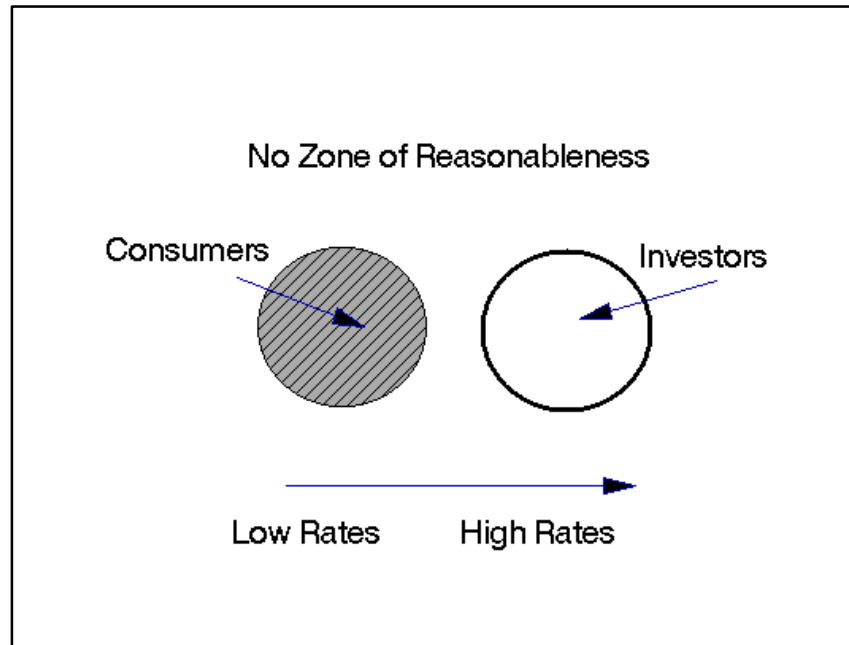


Figure 2. Divergent Interests: A Null Zone of Reasonableness

For example, if a utility is providing poor service (or a service which is becoming obsolete), the highest price which consumers are willing to pay may be very small, thereby falling below the low end of the investors' range. Similarly, if interest rates or the levels of investment become very high, investors' minimum return requirements may become so high as to fall above the range of rates which consumers can afford to pay. When this happens, the rate regulators may have to set rates which fall outside of the normal zone of reasonableness, but which still attempt to fairly balance the interests of all parties to the extent possible.

It also must be remembered that while these concepts can be easily illustrated using circles on a diagram, the real world is not so simple. There is no bright line delineating any of these interests. The regulator is forced to discern the relative interests of the parties from the arguments and evidence which are placed on the record.

1 **Q. Are you saying that the Commission should not set rates outside the zone of**
2 **reasonableness?**

3 A. No, I am not saying that. In fact, in certain instances it may be impossible for the
4 Commission to simultaneously satisfy all aspects of the public interest. As I view the
5 role of rate regulators, they must act within the broad public interest. Sometimes, that
6 may mean setting rates which fail to meet the needs of a certain segment of the public. I
7 believe, however, that whenever it sets rates, the Commission must attempt to determine
8 whose needs are being met and whose are not.

9 **Q. Isn't that usually done in the traditional ratemaking process?**

10 A. Unfortunately, it is not usually done. In most cases, the investors' interest becomes a
11 central focus of the case, by attempting to determine the return on capital which investors
12 require in order to continue to invest money in the utility. This is usually examined in
13 great detail, with each side spending thousands of dollars on attorneys and expert
14 witnesses skilled in the presentation of this subject. Very rarely, though, do regulators or
15 parties place as much emphasis on attempting to define the consumers' interest.

16 **Determining "Just and Reasonable" Rates at this Time**

17 **Q. You have testified on numerous occasions before this Commission. Do you always go**
18 **into such detail about "just and reasonable" rates or the "zone of reasonableness"?**

19 A. No. As best as I can recall, prior to this year, the only time I raised these issues in such
20 detail before this Commission was in 1993 in a rate case involving Colony Water
21 Company, Docket No. R-00922375. As I remember it, that utility was proposing
22 extremely high rates that would be unaffordable for many of its customers. I

1 recommended a ratemaking approach that would have set rates based on the rates charged
2 by that small utility's water supplier, even though the rates would be below the traditional
3 revenue requirement calculation for the utility.

4 **Q. Why are you raising these concerns in this case?**

5 A. The Company filed this case on April 29, 2020, when its service area -- indeed the entire
6 world -- was being devastated with the worst pandemic in a century. While I understand
7 that it takes months to prepare a rate filing, and that PAWC prepared this case assuming
8 "business as usual," there was nothing that compelled it to actually file the case. To state
9 the obvious, life and business in the Company's service territory are now anything but
10 normal.

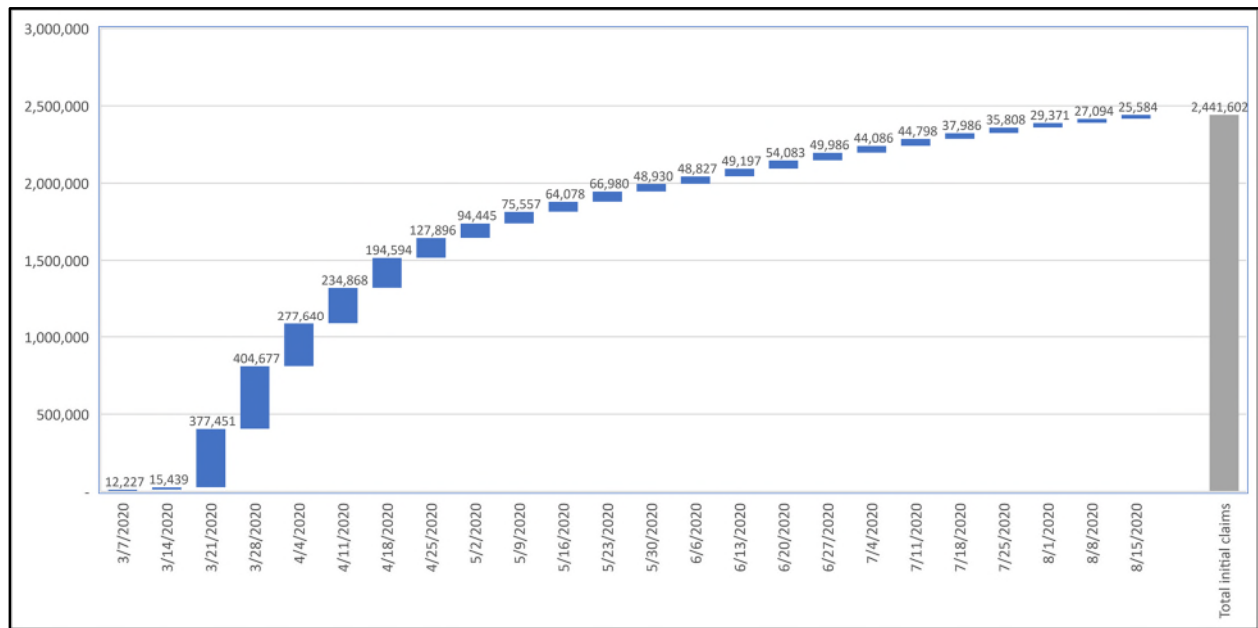
11 In particular, I am very concerned about the impact that significant rate increases
12 would have on PAWC's customers at this time. To be blunt, this is not the time to
13 impose higher costs on either people or businesses.

14 If regulation is supposed to be a substitute for market forces, then we must
15 recognize that, except for those commodities experiencing significant imbalances of
16 supply and demand due to the pandemic, competitive businesses cannot sustainably raise
17 prices when their customers' incomes have decreased significantly. We're seeing supply
18 gluts of necessities such as gasoline, certain types of food, skyrocketing unemployment,
19 and a significant reduction in hours for many people who are still employed. Simply
20 stated, what may have been a "just and reasonable" rate earlier this year may be
21 unreasonable today.

The Pandemic's Impact on People

Q. Can you be more specific about the impacts of the pandemic on people in the Company's service area and throughout Pennsylvania?

A. Yes, I can be more specific to some extent. Data on new statewide unemployment claims are released each week, but county-level data are released only monthly. Figure 3 shows the devastating effect the pandemic has had on unemployment in the Commonwealth.



***Figure 3. Initial Unemployment Claims in Pennsylvania:
Weeks Ending March 7 to August 15, 2020***

The huge spike in unemployment claims during the weeks ending March 21 and March 28 coincides with the entry of the Governor's order of March 19 closing all dine-in restaurants on that date and all non-life-sustaining businesses on March 21. To put these figures in perspective, according to the U.S. Census Bureau, Pennsylvania had a

1 workforce of approximately 6,576,000 people in 2018.¹ In the past five months, 2.4
2 million Pennsylvanians have filed initial unemployment claims -- more than 37% of
3 Pennsylvania's workforce.

4 **Q. Can you quantify the pandemic's impact on employment in the Company's service**
5 **territory?**

6 A. County-level unemployment data are published monthly in Pennsylvania. As I am
7 preparing this testimony, the most recent information was published on September 1.
8 The data are labeled for the month of July, but they are collected during the second week
9 of each month.

10 **Q. Can you estimate the effects on employment in the counties PAWC serves?**

11 A. Yes. Figure 4 shows the counties served (in whole or in part) by the Company and their
12 unemployment rates as of mid-July. The rates range from 8.8% in Centre County to
13 17.4% in Monroe County. The underlying data for this and the other county-level figures
14 I discuss are provided in Schedule SJR-1.

¹ U.S. Census Bureau, 2018 American Community Survey, Table S2301: Employment Status.

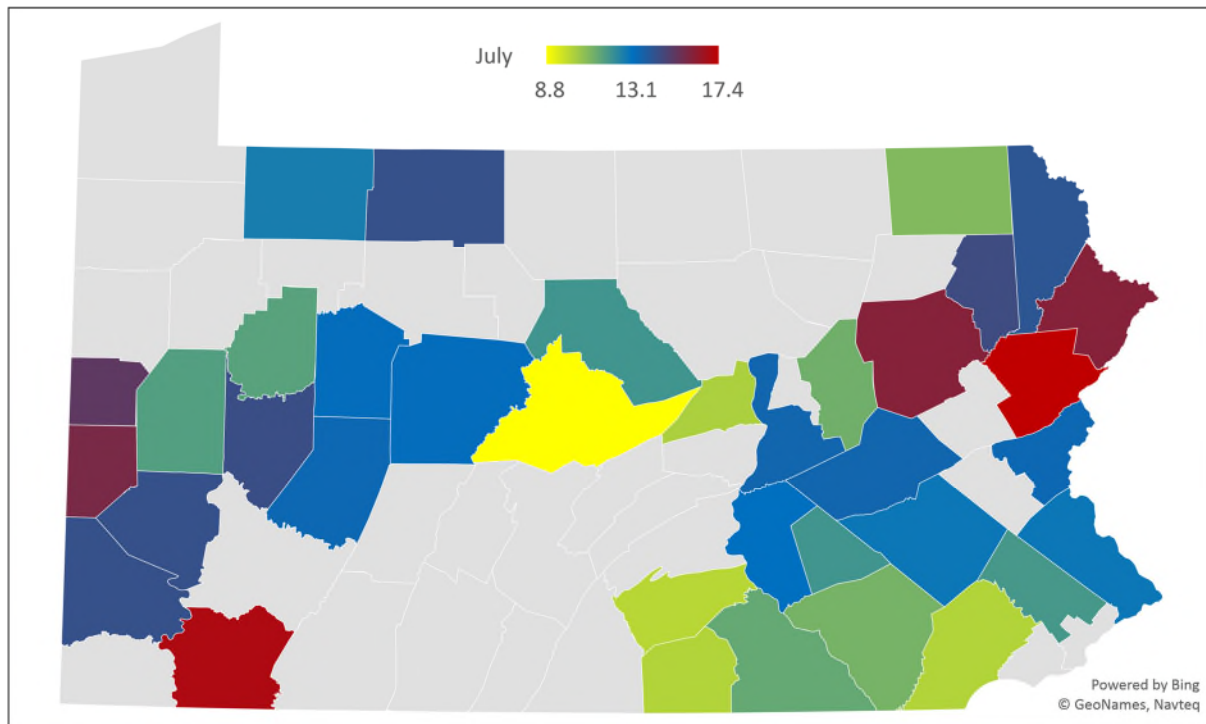


Figure 4. Unemployment Rate in Counties Served by PAWC, as of mid-July 2020 (seasonally adjusted)

Q. Generally, what effect has the pandemic had on families' finances?

A. The Federal Reserve System is attempting to measure the effects of the pandemic on household finances. On May 14, 2020, the Federal Reserve System released its annual report on the economic well-being of households.² Most of the report is based on surveys conducted during 2019, but a supplemental survey was conducted in the first week of April 2020 to assess the impacts of the pandemic on household finances. I am attaching as Schedule SJR-2, the cover page and the portion of the report dealing with the April 2020 supplemental survey (pages 53-56 of the report).

² Board of Governors of the Federal Reserve System, Report on the Economic Well-Being of U.S. Households in 2019, Featuring Supplemental Data from April 2020 (May 2020), <https://www.federalreserve.gov/publications/files/2019-report-economic-well-being-us-households-202005.pdf>.

1 The survey found that “20 percent of people who had been working in February
2 reported that they lost a job or were furloughed in March or the beginning of April
3 2020.”³ Among lower-income households, however, the impact was even more severe.
4 The report states: “Thirty-nine percent of people working in February with a household
5 income below \$40,000 reported a job loss in March.”⁴ Further, approximately 9 percent
6 of people who were still working had their hours reduced or were required to take unpaid
7 leave.⁵

8 Overall, “23 percent of adults said their income in March was lower than in
9 February.”⁶ Of those who lost their job or had their hours reduced, only 64% said they
10 would be able to pay all of their bills in full during April.⁷ That is, more than one-third of
11 the families that suffered a loss in income during March will not be able to pay all of their
12 bills the following month.

13 Data for Pennsylvania show an even more serious result. The U.S. Census
14 Bureau conducted special weekly surveys of households from April 23 to July 21, known
15 as the Household Pulse Survey. In the first week, 46.9% of Pennsylvania households
16 reported a loss of at least some employment income since March 13. By the final
17 (twelfth) week of the survey (the week ending July 21), that had risen to about 48% of
18 households, as shown in Figure 5.⁸

³ Schedule SJR-2, p. 2.

⁴ Id.

⁵ Id. The report states that 6% of all adults had their hours reduced. Given the number of all adults in the workforce, this would equate to approximately 9% of working adults.

⁶ Id., p. 3.

⁷ Id., pp. 3-4.

⁸ U.S. Census Bureau, Household Pulse Survey, <https://www.census.gov/data-tools/demo/hhp/#/table>.

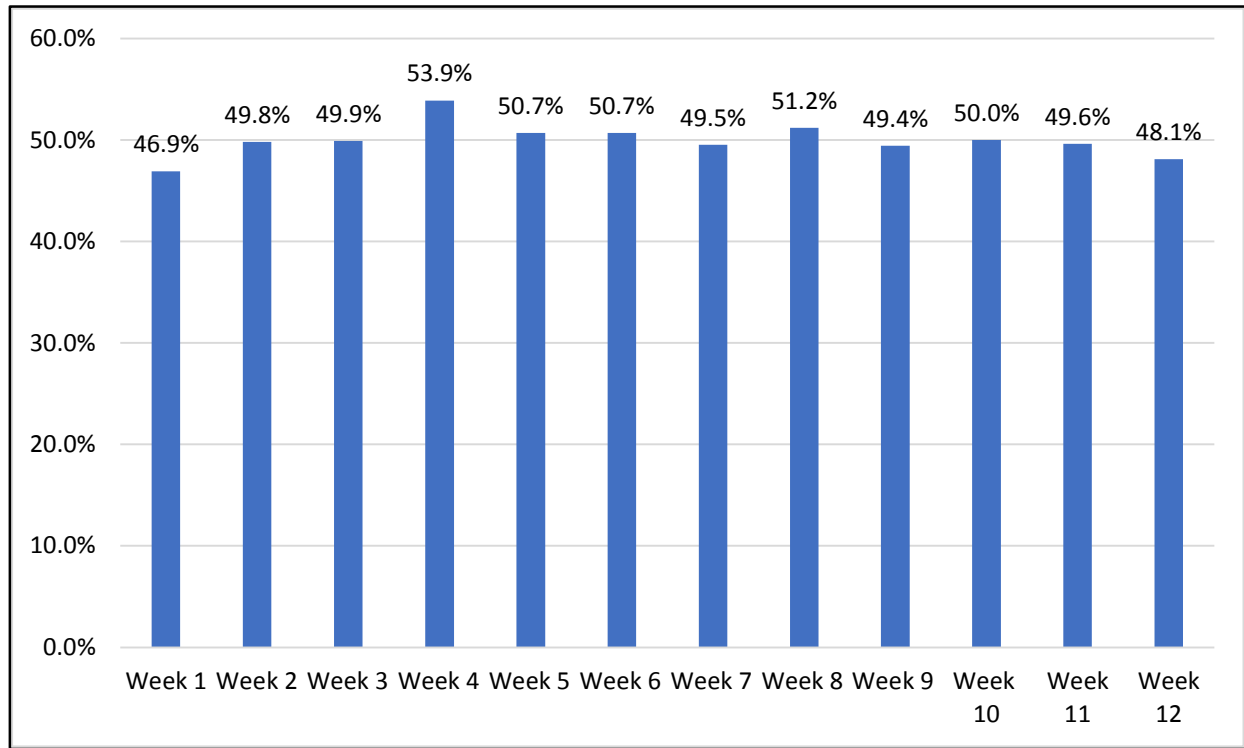


Figure 5. Percentage of Pennsylvania Households Experiencing Loss in Employment Income Since March 13 (week 1 begins April 23)

Q. Does the Census Bureau’s Household Pulse Survey contain other information that helps to define the scope of the pandemic’s impacts in Pennsylvania?

A. Yes. In addition to asking about income loss during the pandemic, the Census survey also asks about expected income loss during the next four weeks. The results in Schedule SJR-3 were collected during the week ending July 21, so the next four weeks cover the remainder of July and the first two or three weeks of August. Approximately 29% of Pennsylvania’s workforce expected to suffer an additional income loss during that four-week period.

I also find it noteworthy that the lower a household’s income, the greater the impact of the pandemic on income loss. Similarly, households headed by a person who

1 the Census Bureau classifies as Black or Hispanic are much more likely to have
2 experienced an income loss -- and to expect additional income loss into mid-August --
3 than are households headed by a person classified as White, Non-Hispanic.

4 **Q. With such a significant loss of income, how are Pennsylvanians paying their bills?**

5 A. The Census Bureau's Household Pulse Survey began asking exactly that question in
6 week 7 of the survey; specifically, asking how households that lost some of their
7 employment income paid their bills in the past seven days. In Schedule SJR-4, I show
8 the results for the final week of the survey, the week ending July 21. People were able to
9 report multiple sources of funds to pay their bills. Only 60% of Pennsylvanians who lost
10 income said they used their normal source of income to pay bills in the previous week.
11 About 26% cited unemployment benefits and 27% referred to the CARES Act stimulus
12 payments. More people, however, relied on credit card debt or loans (including loans
13 from family or friends) (40%) or money from savings or asset sales (35%) than relied on
14 short-term government benefits.

15 **Q. Are people concerned about being able to afford their utility bills during this time?**

16 A. Yes. A recent survey conducted by the Electric Power Research Institute ("EPRI") found
17 that about two-thirds of people who lost their jobs during the pandemic are concerned
18 about being able to pay their energy bills.⁹ Moreover, more than 20% of survey
19 respondents reported that their energy bills were higher because of the pandemic.¹⁰

⁹ Omar Siddiqui and Min Long, Impact of COVID-19 on Consumer Energy Use & Outlook: Results of EPRI National Survey (April 29, 2020), http://mydocs.epri.com/Docs/public/covid19/COVID-19_survey_report.pdf, a copy of which is attached as Schedule SJR-5. The referenced question is on page 4 of Schedule SJR-5.

¹⁰ Schedule SJR-5, p. 3.

1 Interestingly, the survey also found that more than 25% of people who lost their jobs are
2 planning to skip at least one utility bill payment,¹¹ but a much lower percentage were
3 planning to contact their utilities for assistance.¹²

4 ***The Pandemic's Impact on Small Businesses***

5 **Q. Are there any indicators of the condition of Pennsylvania's economy as a result of**
6 **the pandemic?**

7 A. Yes. A recently initiated small-business survey by the U.S. Census Bureau provides
8 insights into the condition of small businesses in Pennsylvania. The Census Bureau
9 estimates that, as of the week ending May 2, 31.6% of small businesses in Pennsylvania
10 said they would not return to normal operations for more than six months and 6.6% of the
11 Commonwealth's small businesses expected to never return to their pre-pandemic level
12 of operations.¹³ By the week ending August 22, the small-business outlook was
13 considerably worse with 58% of businesses selecting these two categories. I show the
14 trend over the survey's 11 weeks graphically in Figure 6.¹⁴

¹¹ Schedule SJR-5, p. 7.

¹² Schedule SJR-5, p. 12 (15% of those who lost their jobs said they planned to contact the utility about alternate rate plans or other ways to lower their bills).

¹³ U.S. Census Bureau, Small Business Pulse Survey, <https://www.census.gov/data/experimental-data-products/small-business-pulse-survey.html>.

¹⁴ The Census Bureau did not conduct the Small Business Pulse Survey between June 27 and August 9.

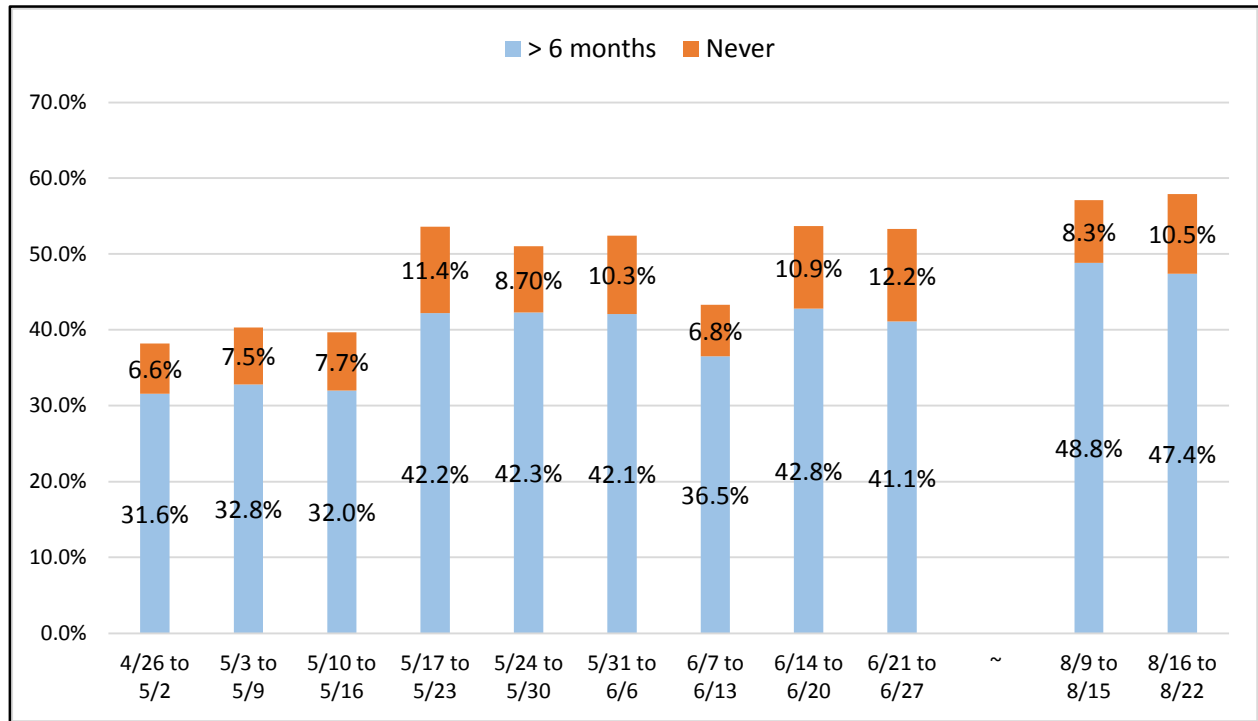


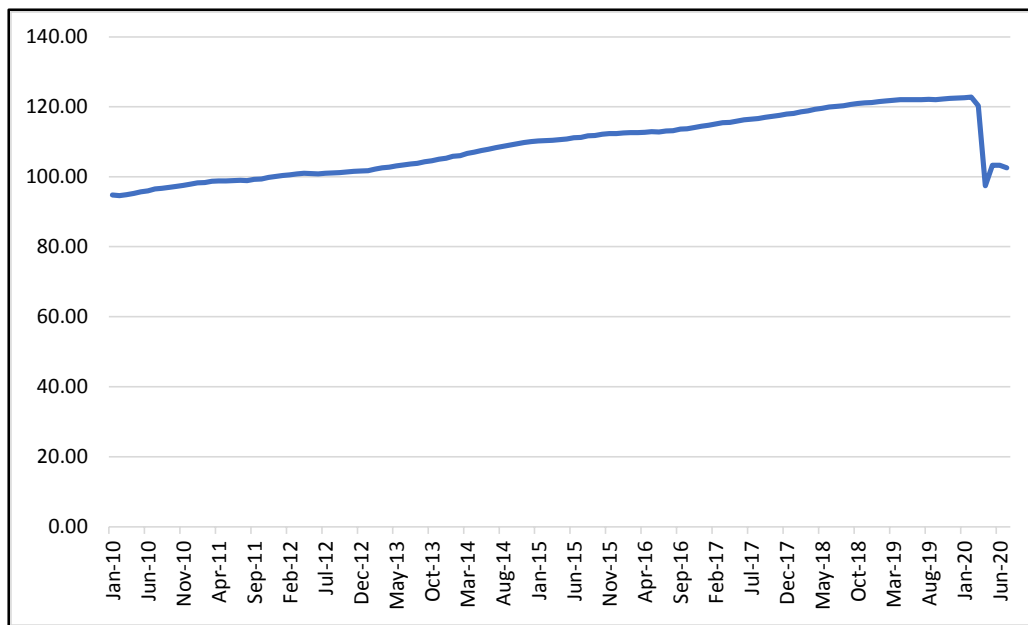
Figure 6. Percentage of Small Businesses in Pennsylvania Expecting it to Take at Least Six Months to Return to Usual Level of Operations (April 26 to August 22, 2020)

Q. Has there been an overall assessment of the pandemic's effects on Pennsylvania's economy?

A. Yes. Each month, the Federal Reserve Bank calculates a "coincident index" for each state and the country as a whole. The index is described as follows: "The coincident indexes combine four state-level indicators to summarize current economic conditions in a single statistic. The four state-level variables in each coincident index are nonfarm payroll employment, average hours worked in manufacturing by production workers, the unemployment rate, and wage and salary disbursements plus proprietors' income deflated

by the consumer price index (U.S. city average).”¹⁵ The index is set so that the level of economic activity in 2007 is equal to 100.

Between January and April, Pennsylvania’s coincident index plunged from 122.56 to 97.43, a decline of more than 20%. The index recovered to 103.27 in May but dropped back to 102.50 in July, which is still 16% below the pre-pandemic level of economic activity. Indeed, Figure 7 shows that Pennsylvania’s level of economic activity in April was the lowest it had been in a decade.



**Figure 7. Federal Reserve Bank Coincident Index
(Measure of Economic Activity) in Pennsylvania January 2010 to July 2020**

¹⁵ <https://www.philadelphiafed.org/research-and-data/regional-economy/indexes/coincident>

1 **Regulatory Response**

2 **Q. How does this affect the decisions the Commission must make in this case?**

3 A. Faced with this unprecedented public health and economic crisis, I respectfully submit
4 that the Commission cannot treat this case as “business as usual.” Almost no other
5 business in PAWC’s service area is conducting business as usual; residential consumers
6 are using the Company’s services differently than they do during normal circumstances
7 (few if any people are usually at home 24 hours per day, 7 days a week, preparing every
8 meal at home, and so on).

9 Respectfully, the Commission cannot focus on PAWC’s historic costs, or on cost
10 projections prepared before the pandemic, and assume that the resulting rates will be “just
11 and reasonable.” The Commission must focus on what rates are reasonable for
12 consumers to pay under these extraordinary conditions.

13 **Q. Are you aware of any regulatory precedents that discuss ratemaking during a**
14 **pandemic or other severe economic downturn?**

15 A. While the research is difficult (especially with most libraries closed), there is some
16 precedent from regulatory commissions during the last nationwide pandemic, the
17 influenza pandemic in 1918 and 1919. From these early days of utility regulation in this
18 country, it was recognized that circumstances in the economy (including disease
19 outbreaks) could affect utilities in the same way that other businesses were affected.
20 When that occurred, regulation would not protect utilities from the adverse consequences.

21 I have not conducted exhaustive research, but I did locate a case decided by the
22 Supreme Judicial Court of Massachusetts in 1919 where the owner of a streetcar service

1 challenged a public service commission ratemaking order.¹⁶ Among the challenges faced
2 by the business in 1918 were increases in the cost of raw materials (presumably due to
3 the war effort), reduction in ridership, and “the wide prevalence of the epidemic known
4 as influenza, a factor seriously affecting receipts during October and November, 1918.”¹⁷

5 The Massachusetts court cited with approval a federal appellate decision that held
6 as follows:

7 To be just and reasonable, within the meaning of the constitutional
8 guaranty, the rates must be prescribed with reasonable regard for the cost
9 to the carrier of the service rendered and for the value of the property
10 employed therein; but this does not mean that regard is to be had only for
11 the interests of the carrier, or that the rates must necessarily be such as to
12 render its business profitable, for reasonable regard must also be had for
13 the value of the service to the public. And where the cost to the carrier is
14 not kept within reasonable limits, or where for any reasons its business
15 cannot reasonably be so conducted as to render it profitable the misfortune
16 must fall upon the carrier, as would be the case if it were engaged in any
17 other line of business.¹⁸

18 The court went on to uphold the regulatory commission’s ratesetting order that
19 was not expected to result in the utility earning a profit. The court reasoned that “the
20 times are recognized as abnormal,” but that did not deprive the commission of its
21 regulatory responsibility to “exercise its judgment for the protection of the public
22 interests when it does not reduce substantially the revenue proposed to be exacted from
23 the public by the owners of the public utility.”¹⁹ The court also emphasized that the rates
24 were “likely to be impermanent and experimental.”²⁰

¹⁶ *Donham v. Public Service Commission*, 232 Mass. 309, 122 N.E. 397 (1919).

¹⁷ *Id.*, 232 Mass. at 315, 122 N.E. at 400.

¹⁸ *Id.*, 232 Mass. at 317, 122 N.E. at 401 (emphases added; quoting from *Missouri, Kansas & Topeka Railway Co. v. Interstate Commerce Commission*, 164 Fed. 645 (1908)).

¹⁹ *Id.*, 232 Mass. at 326, 122 N.E. at 405.

²⁰ *Id.*

1 In other words, the idea that ratemaking must adapt to extraordinary conditions is
2 neither new nor novel. A century ago during another serious pandemic, regulators
3 adapted, took actions that provided relief to the public, and did not inflict long-term harm
4 on the utility.

5 **Q. Are you aware of any Pennsylvania regulatory actions during a severe economic**
6 **downturn?**

7 A. Yes, in another rate case pending before the Commission, a consultant for the utility
8 made me aware of a 1934 resolution by the Pennsylvania Public Service Commission
9 (“PSC”) that strongly encouraged utilities to reset their rates using a 6% rate of return.²¹

10 The PSC’s 1934 resolution is referred to in a published history of the Philadelphia
11 Electric Company as follows:

12 In 1934, the [Public Service] Commission limited the return allowable to
13 utilities to six percent (it had been seven per cent), and between January 1,
14 1933, and June 30, 1936, it obtained rate reductions totaling \$15,000,000
15 from Pennsylvania operating companies. ... [The Philadelphia Electric]
16 Company lowered its rates substantially in 1933, 1934, 1935, and 1936.²²

17 Thus, it appears that this Commission’s predecessor lowered rates substantially during
18 the Great Depression based (at least in part) on prevailing economic conditions, as stated
19 in the 1934 resolution.

²¹ *Re Utility Rates During Economic Emergency*, 3 P.U.R. NS 123 (Pa. P.S.C. 1934).

²² Nicholas B. Wainwright, *History of the Philadelphia Electric Company: 1881-1961* (Philadelphia, PA 1961), p. 246.

1 **Q. How are other utilities and regulators addressing these unprecedented**
2 **circumstances?**

3 A. I have not conducted exhaustive research to try to identify every regulatory and utility
4 response to ratesetting during the pandemic. I can, however, provide a few examples.

5 Hydro One, a large electric utility in Ontario, Canada, temporarily modified its
6 rate structure to eliminate peak-period pricing, recognizing that people are at home 24-
7 hours per day and cannot avoid peak-period usage. The utility estimates this will reduce
8 a typical customer's bills by more than 14%.²³

9 The Halifax (Nova Scotia) Regional Water Commission withdrew its request to
10 increase water rates. It also delayed and significantly reduced its proposed increase in
11 wastewater rates.²⁴

12 Utilities throughout the United States also are deferring rate increases or
13 implementing rate reductions during this period. These actions provide some relief to
14 customers who are facing a horrible confluence of events: an increase in home utility bills
15 (as they are home essentially 24 hours per day, 7 days per week) coupled with declines in
16 income. A few examples are summarized as follows:

- 17 • Dominion Energy in South Carolina is pushing back the effective date for
18 its rate increase to March 1, 2021, instead of January 1, 2021.²⁵

²³ <https://www.hydroone.com/about/corporate-information/rate-relief>.

²⁴ *In the Matter of an Application by Halifax Regional Water Commission*, Decision No. 2020 NSUARB 113 (Aug. 27, 2020). <https://nsuarb.novascotia.ca/sites/default/files/M09589%20-%20Board%20Decision.pdf>

²⁵ Dominion Energy wants rate increase pushed back, trying to help customers during pandemic, NBC - 2 WCBD (Charleston, South Carolina), April 2, 2020; see letter filed by Dominion with the South Carolina Public Service Commission at <https://dms.psc.sc.gov/Attachments/Matter/eb126cd9-68IV-47de-8b7d-775984d8a4e5>.

- 1 • Minnesota Power significantly reduced its requested rate increase and is
2 refunding more than \$12 million to customers to help alleviate pandemic-
3 related financial concerns.²⁶
- 4 • California Water Service Co. is eliminating all scheduled rate increases
5 during 2020.²⁷
- 6 • Chelan County (Washington) Public Utility District is postponing
7 previously approved increases in electric, water, and wastewater rates by
8 six months to provide customers some relief during the pandemic.²⁸
- 9 • The City of Austin (Texas) reduced its electricity rates by about 4%,
10 eliminated the residential price increment for usage in excess of 1,000
11 kilowatt-hours per month, and reduced rates for residential water and
12 wastewater consumption by 10%.²⁹
- 13 • PEPCO, the electric utility serving the District of Columbia and
14 surrounding areas, announced on June 1st that it would forego a \$25
15 million rate increase scheduled for this year in D.C., make a shareholder
16 donation to its low-income assistance fund, and take other actions to assist
17 customers during the pandemic.³⁰
- 18 • A report by Moody's Investors Service expects similar delays in numerous
19 electric, gas, and water utility rate proceedings throughout the U.S. as a
20 way of providing some relief to consumers during the pandemic.³¹
- 21 • Most recently, Philadelphia Water Department withdrew its pending
22 request for increases in water, wastewater, and stormwater rates that
23 would have become effective in September 2020 and September 2021. In
24 a June 2020 filing, the utility cited "the on-going pandemic and the
25 uncertainty over the anticipated duration of continuing emergency
26 measures."³²

²⁶ Minnesota Power Proposes Plan to Resolve Rate Request in Response to Economic Challenges of COVID-19; Customers will receive refund on bills and lower rates under proposal to state regulators, Business Wire, April 23, 2020.

²⁷ Utility; Cal Water requests a delay in rate changes, Oroville Mercury Register (California), April 30, 2020.

²⁸ Chelan PUD delays rate increase by 6 months, S&P Global Market Intelligence, <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/chelan-pud-delays-rate-increase-by-6-months-58041707>.

²⁹ <https://austinenenergy.com/ae/rates/residential-rates/residential-electric-rates-and-line-items>.

³⁰ PEPCO press release, PEPCO Proposes to Freeze DC Customer Energy Delivery Rates Until 2022, <https://www.pepco.com/News/Pages/PepcoProposestoFreezeDCCustomerEnergyDeliveryRatesUntil2022andAssistCustomerswithPandemicEconomicRecovery.aspx>.

³¹ Moody's Investors Service, Coronavirus outbreak delays rate cases, but regulatory support remains intact, April 6, 2020, https://www.eenews.net/assets/2020/04/09/document_ew_04.pdf.

³² <https://www.phila.gov/departments/water-sewer-storm-water-rate-board/rate-proceedings/2020-rate-proceeding/>.

1 **Q. What do you recommend?**

2 A. I strongly recommend that the Commission either reduce rates (as recommended by
3 OCA's other witnesses) or at a minimum deny any rate increase to the Company in this
4 case. PAWC's projections for the FPFTY cannot be relied upon to make reasonable
5 findings or conclusions about its level of revenues, expenses, or any of the other elements
6 that enter into the ratemaking calculus.

7 Moreover, now is not the time to impose additional, unavoidable costs on
8 consumers. Residential customers are experiencing unprecedented levels of
9 unemployment and other economic dislocation (such as reduced hours of work), while
10 many are battling the COVID-19 infection. Businesses of all sizes, as well as local
11 governments, schools, universities, and nonprofit organizations are struggling to remain
12 viable. I expect many will not be able to survive or, if they do, it might take them months
13 or years to return to pre-pandemic levels of operations.

14 To put all of this in terms of utility ratemaking: it would be neither just nor
15 reasonable for the Company to increase its rates at this time. The Commission should
16 deny PAWC's request in its entirety and keep PAWC's existing rates (and all other tariff
17 provisions) in effect.

18 **Q. Other than the information you provided above, is there any other information that**
19 **lends support to your recommendation?**

20 A. Yes. The Company's filing is based on data for the utility under normal conditions. In
21 the historic test year (twelve months ending December 31, 2019), under its existing rates,
22 PAWC had per books net income of \$173.9 million for water operations (excluding

1 Steelton).³³ This provided the Company with a return on common equity of at least
2 8.69%.³⁴

3 **Q. How does your recommendation compare to the recommendation developed by the**
4 **OCA's other experts, assuming we were not in the midst of a pandemic?**

5 A. Those witnesses' testimonies and exhibits will speak for themselves, but I can provide
6 my basic understanding of their in-depth analyses of PAWC's operations. As I
7 understand it, the OCA's experts have concluded that PAWC's existing rates should be
8 reduced. I also would note that this assumes none of PAWC's costs or revenues are
9 affected by the pandemic or the ongoing economic fallout from the past few months.

10 I would emphasize that we are not living under normal conditions. Businesses,
11 small and large, throughout Pennsylvania are facing the very real prospect of not being
12 able to pay their out-of-pocket expenses and laying off most or all of their workforce.
13 They are facing negative returns on their investments. That is the real-world competitive
14 market that regulation is trying to mirror.

15 I am not suggesting that the Company should have rates that are inadequate to
16 ensure the provision of safe and reliable service to its customers. My recommendation
17 allows PAWC to continue operations, recover all of its expenses, and earn a profit. Most
18 Pennsylvania businesses would be absolutely thrilled if they could pay all their bills
19 (including various increases in expenses that may or may not occur next year), make all
20 of their debt payments, and still have enough left over to earn a profit on their equity

³³ PAWC Exh. 3-A, p. 1.

³⁴ Id., p. 70.

1 investment. Most Pennsylvania businesses would find that result absolutely amazing at
2 this time. When compared to the economic devastation gripping its service territory, I
3 cannot find anything just or reasonable about increasing PAWC's rates at this time.

4 Moreover, it is my opinion that the Commission cannot lend any credence to
5 PAWC's projections for the FPFTY. That applies to essentially every aspect of the
6 Company's projections. Since March, interest rates have dropped to near zero;³⁵ oil
7 prices have plunged;³⁶ and consumer prices have barely changed.³⁷ No one can say how
8 much water PAWC will sell and to which customer classes. How many restaurants will
9 be open? How many children will be in school remotely this fall? How many colleges
10 and universities will be able to stay open this semester?

11 Based on all of these factors, I conclude that the Commission cannot have any
12 confidence in the projections made by PAWC for the FPFTY; there is simply too much
13 uncertainty. It would be neither just nor reasonable to set rates based on the assumptions
14 the Company made when it filed this case in late April. Virtually every assumption is
15 changing as a result of the pandemic. As a consequence, it is my opinion that it is
16 reasonable -- I would go so far as to say required -- for the Commission to reject
17 PAWC's request to increase its rates. The Commission cannot have any certainty about

³⁵ Board of Governors of the Federal Reserve System, Policy Tools (interest rates were decreased to the range of 0% to 0.25% on March 16, 2020), <https://www.federalreserve.gov/monetarypolicy/openmarket.htm>.

³⁶ U.S. Department of Energy, Energy Information Administration, Petroleum and Other Liquids (the price of a standard crude oil contract fell from \$53.14 on January 27 to \$42.62 on August 24), <https://www.eia.gov/dnav/pet/hist/RCLC1D.htm>.

³⁷ U.S. Bureau of Labor Statistics, Consumer Price Index (the CPI fell 0.4% in March, 0.8% in April, and another 0.1% in May), https://data.bls.gov/timeseries/CUSR0000SA0&output_view=pct_1mth. The consumer price level in July was just 1% higher than it was in July 2019. Bureau of Labor Statistics, U.S. Department of Labor, The Economics Daily, Consumer prices increase 1.0 percent in the 12 months ending July 2020, <https://www.bls.gov/opub/ted/2020/consumer-prices-increase-1-point-0-percent-in-the-12-months-ending-july-2020.htm> (visited August 27, 2020)..

1 the appropriate, ongoing level of expenses, interest rates, consumption patterns, and the
2 numerous other factors that affect the determination of an appropriate level of rates.

3 **Q. If the economic situation worsens significantly and cash flow becomes a concern for**
4 **the Company, are there other actions it could take?**

5 A. Yes, one obvious way to preserve cash is to defer construction projects that are not
6 needed to ensure the current provision of safe and reliable service to existing customers.
7 For example, growth-related projects or system rehabilitation activities that are longer-
8 term in nature (that is, projects that are not needed to ensure current levels of service
9 within the next six to 12 months) could be delayed by several months to preserve cash, if
10 necessary.

11 In addition, I note that other large utilities have been taking advantage of the very
12 low cost of debt and issuing 10-year notes or bonds at historically low interest rates. For
13 example, I have seen headlines recently for a gas utility in Arizona that issued 10-year
14 debt at a 2.2% interest rate³⁸ and an electric utility in the southern U.S. that issued 10-
15 year debt at a 1.75% interest rate.³⁹ (In contrast, PAWC's weighted cost of debt is in the
16 range of 4.5%.⁴⁰) This type of low-cost, long-term financing can help provide a utility
17 with the cash flow needed to keep its existing rates in effect through the pandemic
18 without suffering significant economic harm.

³⁸ Fitch Rates Southwest Gas Corp's \$450MM Notes 'A'; Outlook Stable,
<https://www.fitchratings.com/research/corporate-finance/fitch-rates-southwest-gas-corp-450mm-notes-a-outlook-stable-01-06-2020>.

³⁹ Southern Company Gas Capital Corporation, Series 2020A 1.750% Senior Notes due January 15, 2031,
<https://www.sec.gov/Archives/edgar/data/1004155/000100415520000008/gas2020asrnotefinalprosup.htm>.

⁴⁰ PAWC Exh. 3-A, p. 70.

Introduction of OCA's Other Witnesses

Q. If the Commission disagrees with you and decides to determine PAWC's revenue requirement and rates as if we were not in the midst of a pandemic, what do you recommend?

A. The OCA is sponsoring the testimony of five other witnesses who will provide a more traditional rate case presentation. In addition, the remainder of my testimony also addresses traditional rate-case issues. If the Commission rejects my recommendation, I would respectfully suggest that it carefully evaluate the proposals made by the OCA's other witnesses, and allocate any rate change equitably among all customers.

Q. Who are the OCA's other expert witnesses?

A. Ralph Smith supports the OCA's traditional revenue requirements recommendations in OCA Statement 2. Mr. Smith also discusses the reasons why PAWC cannot meet its burden of proving the reasonableness of its FPFTY projections in light of all of the changes caused by the pandemic.

In developing his recommendations, Mr. Smith relies on the rate of return analysis presented by Aaron Rothschild in OCA Statement 3. Mr. Rothschild also discusses some of the pandemic's effects on capital markets and potential impacts on PAWC's financing costs.

In OCA Statement 4, Roger Colton addresses the particular plight of the Company's low-income customers during this time. He recommends changes in the Company's bill discount programs, and related matters to help all PAWC customers afford essential utility service.

OCA Statement 5 contains the analyses and recommendations of Barbara Alexander concerning customer-service issues, including various provisions of the Company's tariffs.

Finally, a water and wastewater engineer, Terry Fought, makes several recommendations about technical aspects of PAWC's water delivery and wastewater collection systems. His testimony is marked as OCA Statement 6.

Overview of this Case

Q. Please provide your general understanding of PAWC's proposed revenue increases in this case.

A. PAWC has proposed to increase its revenues in January 2021 by \$92.4 million (12.9%).⁴¹ In addition, the Company is proposing a second rate increase to be effective in January 2022 which would increase rates by an additional \$46.2 million (5.8%) above the proposed January 2021 level.⁴²

Multiyear Rate Plan ("MYRP")

Q. You stated that PAWC's proposals in this case include rate increases in both January 2021 and January 2022, which is commonly referred to as a multiyear rate plan ("MYRP"). Is this an appropriate case for the Commission to consider a MYRP?

A. No, it is not. OCA witnesses Rothschild and Smith address various aspects of the Company's proposed MYRP and OCA witness Alexander provides customer service-

⁴¹PAWC Statement of Reasons, p. 1.

⁴²Id.

1 related performance metrics if a MYRP is approved. In addition, based on my experience
2 with PAWC and in jurisdictions that use a form of a MYRP, there are three factors that
3 make a MYRP inappropriate for the Company at this time.

4 First, as I discussed above, Pennsylvania is in the midst of the COVID-19
5 pandemic. The pandemic is affecting virtually every aspect of daily life, including the
6 way in which water and wastewater services are used and by whom. There is tremendous
7 uncertainty about how long this will last; whether government, people, businesses,
8 institutions, and others throughout Pennsylvania will have the wherewithal to take the
9 actions necessary to control the spread of the virus; and how long it will take the
10 economy to recover. As I explained, I have serious doubts about the reliability of
11 PAWC's future test year projections. I have even more concerns about the reliability of
12 its fully projected test year. With all of this uncertainty, this is not an appropriate time to
13 project capital additions, expenses, sales, revenues, and capital costs two years into the
14 future.

15 Second, the purpose of a MYRP is to delay the filing of the next rate case while
16 providing benefits for customers. Last year, the Commission issued a policy statement
17 that discusses the potential types of benefits a MYRP or other alternative ratemaking
18 mechanism might provide.⁴³ As far as I can tell, the Company did not discuss these
19 factors in its testimony.

20 While there are always benefits and detriments to delaying a rate case, in this
21 instance I do not believe it is in the public interest to delay PAWC's next case. I reach

⁴³ 52 Pa. Code §§ 69.3301-69.3302.

1 this conclusion based primarily on the fourth factor listed in the policy statement: “How
2 the ratemaking mechanism and rate design limit or eliminate interclass and intraclass cost
3 shifting.”⁴⁴ I am particularly concerned about the Company’s failure to propose a
4 separate rate for stormwater service in three service areas that have combined sewer
5 systems (that is, systems that transport sanitary sewage and stormwater through the same
6 pipes): Kane, McKeesport, and Scranton. As I discuss in more detail below, it is neither
7 just nor reasonable for PAWC to not charge any stormwater-related costs to properties
8 that cause those costs to be incurred and to instead have all of those costs paid either
9 through sewer rates or by water customers. This inequity should not be perpetuated. To
10 the extent that a MYRP would delay the next rate case, it would have the effect of
11 delaying the implementation of separate stormwater rates that would relieve sewer and
12 water customers of some of this unreasonable burden.

13 Third, I have worked on rate cases in other jurisdictions that routinely use
14 MYRPs, such as New Hampshire and Connecticut. In my experience, rates for years
15 beyond the test year (often referred to as “rate years”) are based on specific anticipated
16 costs increases (such as contractual wage increases) or specific capital plans. Before the
17 start of each rate year, the utility will make a filing that documents its actual expenditures
18 for the pre-identified items and then calculates the rate year increase and rates. Future
19 rate levels are not set years in advance; rather a process is established that allows the
20 utility to update particular elements of its cost of service, and to prove that the increases
21 actually occurred, before implementing a future rate increase.

⁴⁴52 Pa. Code § 69.3302(a)(4).

1 **Q. How does that compare to the process PAWC proposes in this case?**

2 A. As I understand it, PAWC is proposing that the Commission determine today what its
3 revenue requirement will be for calendar year 2022, and that nothing can change that
4 determination. It will not matter if the Company actually installs the plant it projects,
5 whether costs increase or decrease, whether the Company takes advantage of historically
6 low interest rates to reduce its capital costs, or whether sales or anything else changes
7 between now and 2022. In my experience, this is not how MYRPs work -- no one's
8 forecasting abilities are good enough to project an entire revenue requirement two years
9 from now. This is especially true when we have no idea how the pandemic and its
10 aftermath might affect water demand, commodity prices, inflation, interest rates, or any
11 other component of the revenue requirement.

12 **Q. What do you recommend?**

13 A. I recommend the Commission reject the Company's request for a MYRP at this time.
14 The Commission should determine rates for water and wastewater service in this case
15 that will remain in effect until the conclusion of PAWC's next rate proceeding. As I
16 discuss below, that case should include separate revenue requirements and rate
17 calculations for stormwater service in McKeesport, Kane, and Scranton.

18 **Review of Cost-of-Service Studies ("COSS")**

19 **Q. What is a COSS?**

20 A. A COSS is an analysis that breaks down a utility's costs and investments into numerous
21 categories, known as functions and classifications. The classified costs are then allocated
22 among the utility's different classes of customers to estimate the cost of serving different

1 types of customers. Those cost relationships are then used as a guide in two additional
2 steps: (1) determining each class's share of the utility's revenue requirement, and
3 (2) designing rates that reasonably reflect the reasons why costs are incurred to serve a
4 class of customers.

5 **Q. Did PAWC prepare a COSS in this case?**

6 A. Yes. The Company prepared multiple COSS. PAWC filed two water COSS: one for
7 Steelton (Rate Zone 5) (PAWC Exh. 12-B) and one covering all other water rate zones
8 (PAWC Exh. 12-A). Within each study there are separate schedules for the FPFTY and
9 the proposed second rate year (calendar year 2022).

10 For wastewater, the Company filed six separate studies, each with separate
11 schedules for the FPFTY and 2022. Studies are provided for Exeter (PAWC Exh. 12-D),
12 Sadsbury (PAWC Exh. 12-E), and sanitary sewer operations excluding Exeter and
13 Sadsbury (PAWC Exh. 12-C). The Company also provided separate studies for its three
14 wastewater areas that have combined sewer systems ("CSS"); that is, systems that
15 provide both sanitary sewage service and stormwater removal through a single network
16 of pipes. The CSS studies are for Scranton (PAWC Exh. 12-F), McKeesport (PAWC
17 Exh. 12-G), and Kane (PAWC Exh. 12-H).

18 **Q. What is the purpose of this section of your testimony?**

19 A. In this section, I will review the water and wastewater COSS for the FPFTY before
20 consideration of any subsidies. That is, in this part of my testimony I will recommend
21 any changes to the cost of serving each customer class under the Company's proposed

1 revenue requirement for the FPFTY, but without considering any subsidies to or from
2 other rate areas. I will discuss subsidies in a later section of the testimony.

3 **Review of Water COSS (PAWC Exh. 12-A and 12-B)**

4 **Q. What is the scope of your review of the water COSS?**

5 A. I reviewed both water COSS (PAWC Exhibits 12-A and 12-B). I have identified changes
6 that need to be made in the main study (Exhibit 12-A). I have not identified any changes
7 that should be made in the Steelton study (Exhibit 12-B). Thus, the remainder of this
8 section will discuss the FPFTY study for the bulk of PAWC's water operations (PAWC
9 Exh. 12-A). My discussion is limited to the FPFTY for ease of presentation. The same
10 adjustments need to be made to the COSS for the second rate year if the Commission
11 decides to set rates for 2022 at this time. To be clear, in the remainder of this section,
12 when I refer to the "water COSS" I am referring to PAWC Exhibit 12-A.

13 **Q. During the discovery process, did PAWC identify any errors in the water COSS?**

14 A. Yes. The Company identified two minor errors in the COSS concerning the allocation of
15 Other Water Revenues - Rents from Other Properties (OCA VIII-006) and account
16 311.54 (Pumping Equipment T&D rate base) (OCA VIII-010). My COSS results
17 (described below) reflect these two corrections.

18 **Q. Are there any other items in the water COSS where you disagree with an**
19 **assumption or calculation made by the Company?**

20 A. Yes, I am proposing three adjustments to the water COSS.

1 **Q. What is your first adjustment?**

2 A. The Company's water COSS allocated late payment fees based on the total cost to serve
3 each customer class (factor 20). In response to OCA VIII-004, the Company provided
4 the actual late payment fee revenues by customer class for the historic test year (calendar
5 year 2019). I propose to use each class's actual contribution to late payment fee revenues
6 to determine the percentage of FPFTY late payment fees that should be allocated to each
7 customer class. I show the calculation of this factor (new factor 23) compared to
8 PAWC's factor 20 on Schedule SJR-6.

9 **Q. What is your second adjustment to the COSS?**

10 A. My second adjustment is to reflect updated information about the number of shared
11 service lines throughout PAWC's service area. Shared service lines can exist in older
12 parts of the system when two customers (that is two meters) share a single service line.
13 This might have occurred in older communities when a separate dwelling was built
14 behind an existing house, or when a single family home was converted to a duplex.

15 The COSS assumes there are 17,356 shared service lines: 16,408 in the
16 Residential class and 948 in the Commercial class.⁴⁵ In response to OCA VII-001,
17 however, the Company's Vice President of Operations stated that there are approximately
18 21,000 shared service lines throughout the system. I have modified the calculations in
19 the water COSS to reflect 21,000 shared service lines, divided between the Residential

⁴⁵ See response to OCA VIII-009 for approximate numbers and an explanation. The actual numbers are found in the formulas used to calculate factor 11 in the water COSS Excel model, meter tab, cells H65 and L65.

1 and Commercial classes in the same proportion used in the original COSS (94.5%
2 Residential and 5.5% Commercial).

3 **Q. Please describe your final adjustment to the water COSS.**

4 A. My third adjustment to PAWC Exhibit 12-A is to change the allocation of customer
5 contributions that were booked when PAWC acquired the water assets of Citizens
6 Utilities Company. In response to OCA VIII-003, PAWC states that most of the
7 contributions related to distribution mains, so it allocated the contributions using the
8 same factor used to allocate distribution mains (factor 4).

9 I do not disagree with that rationale, however the response to OCA VIII-003 also
10 shows that Citizens Utilities did not have any municipal or other water utility customers.
11 As a result, I have calculated a new factor (factor 24) based on factor 4, but recognizing
12 that the Public and Other Water Utility classes could not have made any of those
13 contributions. I show the calculation of this new allocation factor on Schedule SJR-7.

14 **Q. Have you recalculated the water COSS to reflect the corrections and adjustments**
15 **you described above?**

16 A. Yes. On Schedule SJR-8, I show the results after making all of the changes I described in
17 the water COSS compared to the results presented in PAWC Exh. 12-A for the FPFTY.
18 The results are for each class's cost of service before any subsidies are included for either
19 Steelton water operations or any wastewater operations, as shown in PAWC Exh. 12-A,

1 Schedule A, column 2 for the FPPTY.⁴⁶ It can be seen that these changes result in
2 reducing the Residential class's cost of service by approximately \$815,000.

3 ***Review of Sanitary-Only Sewer COSS (PAWC Exhs. 12-C, 12-D, and 12-E)***

4 **Q. What is the scope of your review of the wastewater COSS for sanitary-only sewer**
5 **systems?**

6 A. I reviewed the COSS for each of the sanitary-only sewer areas: PAWC Exhibits 12-C,
7 12-D, and 12-E.

8 **Q. Are you recommending any adjustments to the sanitary-only COSS in PAWC**
9 **Exhibits 12-C, 12-D, and 12-E?**

10 A. No, I am not recommending any adjustments in those studies.

11 ***Review of Combined Sewer System ("CSS") COSS (PAWC Exhs. 12-F,***
12 ***12-G, and 12-H)***

13 **Q. What is the scope of your review of the wastewater COSS for combined sewer**
14 **systems?**

15 A. I reviewed the COSS for each of the CSS areas: PAWC Exhibits 12-F, 12-G, and 12-H. I
16 have a serious concern with the treatment of stormwater-related costs in each of the
17 COSS.

18 **Q. Before you discuss the details of the COSS, what is stormwater utility service?**

19 A. Stormwater utility service is designed to safely, and in compliance with environmental
20 regulations, remove stormwater flows (also known as runoff) from a service area's

⁴⁶ PAWC Exh. 12-A, p. 7.

1 streets, rights of way, parking lots, roofs, sidewalks, and other impervious surfaces.

2 Unlike other utility services, stormwater flows are not subject to being separately
3 metered, and they are not directly related to the consumption of another service that can
4 be directly measured.

5 **Q. Is the lack of metering the only important difference between stormwater service**
6 **and other utility services?**

7 A. No, there are at least two other important differences. First, a significant portion of
8 stormwater flows arise from public streets and rights of way. I will refer to these as right-
9 of-way flows. Right-of-way flows are a shared responsibility of everyone in the service
10 area. There are different methods that can be used to recover right-of-way-related costs;
11 but whatever method is chosen, the charge for that service is neither avoidable,
12 controllable, nor caused by any individual customer.

13 **Q. Are stormwater service and wastewater service fundamentally different services?**

14 A. Yes, they are. Wastewater utility service involves running pipes from each property to a
15 centralized wastewater treatment plant where the wastewater is treated prior to discharge
16 in a receiving water (lake, stream, river, etc.). The customer controls its wastewater
17 production and disposal, collecting the wastewater produced in the building into a pipe
18 (the wastewater service line) that connects to the wastewater utility's wastewater main.
19 Throughout the process, wastewater is produced and controlled by the customer then
20 transferred to the utility at a specific point.

21 In contrast, stormwater service is not directly controlled by customers or
22 contained in pipes throughout the process. Stormwater is generated by precipitation --

1 rainfall and the melting of snow and ice. Some stormwater falls on pervious, unfrozen
2 ground that can absorb some (but usually not all) of the stormwater. Other stormwater
3 falls on roofs, streets, sidewalks, frozen ground, and other largely impervious surfaces
4 where the stormwater is not absorbed and flows downhill. Thus, most stormwater does
5 not begin as a controlled, piped flow of water. The purpose of a stormwater control
6 system, therefore, is to direct the flow of that runoff so that it does not create flooding on
7 private property or public streets and highways. This occurs by grading properties,
8 parking lots, and driveways to control the flow of stormwater, designing streets to direct
9 the flow of stormwater (which is one reason curbs are so important on urban streets).
10 installing stormwater retention basins to reduce peak storm flows, maintaining streets to
11 ensure a proper flows of stormwater (for example by cleaning streets, repairing curbs,
12 and cleaning storm drains), and ultimately have stormwater enter storm drains that collect
13 stormwater in a network of pipes.

14 In a separate system of storm sewers, the stormwater is directly discharged to a
15 body of water with little or no treatment. In a system that combines storm sewers and
16 sanitary sewers, stormwater flows commingle with wastewater flows and should be
17 directed to a wastewater treatment plant. Some older combined systems, however, are
18 not sized large enough to handle the combined flows, so they have what are known as
19 “combined sewer overflows” (“CSO”) that divert some of the combined flow before it
20 reaches the wastewater treatment plant and directly discharges untreated wastewater and
21 stormwater to the receiving water. One of the important clean-water initiatives of the
22 past two decades is to greatly reduce or entirely eliminate the use of CSOs.

1 Thus, stormwater control involves numerous facilities, including catch basins,
2 streets and curbs, storm drains, stormwater pipes (where there is a separate system), and
3 CSO control facilities (in a combined stormwater-wastewater system).

4 The biggest difference between stormwater and wastewater, therefore, is that a
5 customer does not create stormwater but may have some ability to control it, and most
6 stormwater flows above ground until it ultimately reaches a storm drain. In contrast, a
7 customer directly creates and controls all wastewater flows and all of those flows are
8 piped directly into the wastewater system.

9 **Q. What is the second significant difference between stormwater service and other**
10 **utility services, such as water and wastewater service?**

11 A. The second important difference is that the control of stormwater lies with the entity
12 responsible for the property which may be different from the entity that uses other utility
13 services on the property. For example, a tenant in a residence or retail location may be
14 responsible for paying the water and sewer bills, but the tenant generally has no control
15 over how the property handles stormwater. Stormwater controls may include ensuring
16 that gutters do not flow onto streets or sidewalks, that stormwater detention areas are
17 properly sized and maintained, and that parking lots or driveways are designed to avoid
18 runoff onto streets or sidewalks.

19 It is important that the entity that has responsibility for stormwater control
20 (usually the property owner) is responsible for stormwater costs associated with the
21 property. In this way, the property owner can be given an appropriate incentive to
22 control stormwater flows from the property into the CSS.

1 **Q. Is there a recognized way to charge for stormwater service?**

2 A. Yes, there are hundreds of communities and utilities that have separate fees or charges for
3 stormwater service. Each year, Western Kentucky University conducts a survey of
4 stormwater fees and charges. The most recent survey was published in 2019 and is
5 available at no charge online.⁴⁷ According to that survey, there are more than 1,700
6 utilities or communities in the United States that have separate fees for stormwater
7 service, including 27 in Pennsylvania.

8 **Q. How are most stormwater fees structured?**

9 A. From the survey, it appears that most stormwater fees in the United States, and nearly all
10 such fees in Pennsylvania, are based on a measure of the impervious surface area of the
11 property. A typical or average residential area is then calculated (known as an Equivalent
12 Residential Unit, or ERU), and that becomes the basis for stormwater charges for larger
13 non-residential properties. Utilities also may provide fee reductions for properties that
14 significantly control stormwater flows.

15 **Q. Is it reasonable to collect stormwater-related costs based on impervious property**
16 **area or other characteristics of the property?**

17 A. Yes. In my opinion, that is the fairest way to collect stormwater costs from the public. It
18 is consistent with well-established regulatory and judicial precedents about principles of

⁴⁷ C. Warren Campbell, *Western Kentucky University Stormwater Utility Survey 2019* (hereafter “W. Ky. Survey”), https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1000&context=seas_faculty_pubs

1 cost causation and the determination of rates that are just, reasonable, and non-
2 discriminatory.

3 **Q. Are there other reasons to use property characteristics, rather than water use, to**
4 **allocate and collect stormwater costs?**

5 A. Yes. There are many properties that contribute stormwater flows but are not customers
6 of the water or wastewater system. Examples can include parking lots, parking
7 structures, some outdoor recreation facilities (such as basketball or tennis courts), among
8 others.

9 **Q. Can a utility have a significant number of stormwater-only customers?**

10 A. Yes. I can provide two examples from my recent experience. In its currently pending
11 rate case before the Commission, the Pittsburgh Water and Sewer Authority estimates
12 that it will have approximately 8,000 stormwater-only customers when it proposes
13 stormwater rates later this year, compared to about 100,000 wastewater customers
14 currently. In a rate case concluded in late August 2020, the Halifax Regional Water
15 Commission (which has had stormwater rates for several years) stated it had more than
16 19,000 stormwater-only customers compared to approximately 75,000 wastewater
17 customers.

18 **Q. How does PAWC allocate and collect stormwater-related costs in combined systems**
19 **(Scranton, McKeesport, and Kane)?**

20 A. The Company proposes to allocate all stormwater-related costs in the same manner as
21 infiltration and inflow (“I&I”) costs in a sanitary sewer system. PAWC is not proposing

1 to have a separate rate for stormwater service in any rate area. So stormwater costs
2 would be collected from sanitary wastewater customers through the standard customer
3 and flow charges, or from water customers through a subsidy.

4 **Q. What is the Company's rationale for not having a separate stormwater fee?**

5 A. In response to I&E RS-16-D, the Company states that the Commission has never ordered
6 it to have a separate stormwater charge and that since sanitary sewage and stormwater are
7 commingled in a CSS, it is "reasonable to continue recovering the cost of collecting and
8 treating wastewater (including stormwater combined with wastewater) through rates that
9 are based upon water consumption."

10 **Q. What is the Company's rationale for allocating stormwater-related costs in a CSS in**
11 **the same manner as allocating I&I in a sanitary sewer system?**

12 A. In response to OCA IV-018 and OCA IV-025, the Company cites to Manual of Practice
13 No. 27, *Financing and Charges for Wastewater Systems* published by the Water
14 Environment Federation ("WEF Manual").

15 **Q. Are you familiar with the WEF Manual?**

16 A. Yes, I am. The WEF Manual is the standard reference on cost-of-service studies, rate
17 design, and other ratesetting topics for wastewater utilities.

18 **Q. Is the Company correct that the WEF Manual supports allocating stormwater costs**
19 **in the same manner as I&I costs?**

20 A. No. PAWC witness Heppenstall's citation to the WEF Manual in the response to OCA
21 IV-025 is to the third edition of the manual published in 2004. In 2018, the fourth edition

1 of the WEF Manual was published and it includes much more information about
2 allocating stormwater-related costs and how to collect those costs from customers.
3 Indeed the fourth edition of the WEF Manual contains a completely new chapter on “Wet
4 Weather Financing and Cost Recovery” which I have reproduced as Schedule SJR-9.

5 The chapter begins with an introduction which states, in part: “The characteristics
6 of wet weather flows and their potential environmental, economic, and community
7 effects are quite different from that of groundwater inflow and infiltration (I/I) that occur
8 naturally in a wastewater system.”⁴⁸ The text continues to explain that “many wastewater
9 utilities, especially those with a CSS” are facing significant stormwater control costs that
10 it may not be reasonable or fair to collect through traditional wastewater rates. In
11 addition, ratesetting principles such as fairness, along with providing incentives for
12 property owners to reduce stormwater flows, suggest the need for a separate stormwater
13 fee.⁴⁹

14 **Q. Does the 2018 edition of the WEF Manual support the Company’s view that because**
15 **sanitary sewage and stormwater become commingled in a CSS that all costs should**
16 **be collected based on water usage?**

17 A. No, the WEF Manual does not support the Company’s view. The chapter includes a
18 discussion of cost allocation and rate design. For example, the WEF Manual states:
19 “Cost recovery approaches that recover all of wet weather revenue requirements based
20 entirely on sewer charges ... may provide for administrative simplicity and ease of

⁴⁸ Schedule SJR-9, p. 3 (WEF Manual p. 184).

⁴⁹ Id.

1 customer understanding. However, such approaches may affect equity of cost recovery.
2 Sewer charges are typically based on the volume of water usage ... which [has] very
3 limited correlation to the magnitude of a property's wet weather contribution. Therefore,
4 other cost recovery mechanisms such as an impervious area-based wet weather fee could
5 be integrated to a user-fee rate structure portfolio."⁵⁰

6 The WEF Manual also explains the importance of providing property owners with
7 an opportunity to reduce their fees by reducing wet weather flows, calling it "an integral
8 and essential component of any user fee cost recovery approach."⁵¹

9 **Q. Are there other indications that the Water Environment Federation considers it**
10 **important to have separate fees for stormwater service?**

11 A. Yes, in 2013 WEF published a nearly 200-page manual solely to address appropriate
12 approaches for stormwater programs, including how to develop fees or charges for
13 stormwater service.⁵²

14 **Q. Does the Public Utility Code's definition of "wastewater" as including stormwater**
15 **affect your analysis of this issue?**

16 A. No. The definition in the Public Utility Code clarifies that it is lawful for a private
17 company to provide stormwater service; it does not mandate any particular ratemaking
18 treatment for the provision of that service. For example, the Code requires the
19 Commission to regulate electricity distribution service provided by a private company,

⁵⁰ *Id.*, p. 8 (WEF Manual p. 189).

⁵¹ *Id.*, p. 9 (WEF Manual p. 190).

⁵² Water Environment Federation, *User-Fee-Funded Stormwater Programs* (2nd ed. 2013).

1 but it does not prohibit the Commission from establishing rates and terms of service for
2 different types of electricity distribution, such as service provided at different voltages,
3 interruptible service, and so on. Even with wastewater service, the Commission has
4 established separate rates and conditions for the provision of industrial wastewater
5 service (requiring pretreatment and setting the costs of that service), as compared to
6 domestic wastewater service, even though the flows are ultimately commingled in the
7 same sewer mains. The explicit inclusion of stormwater as part of wastewater does not
8 eliminate the need for the Commission to determine the cost of providing stormwater
9 service or determining who should pay those costs.

10 **Q. Are most stormwater charges throughout Pennsylvania based on a property's**
11 **characteristics as the WEF Manual discusses?**

12 A. Yes. According to the Western Kentucky University survey I discussed above, of the 27
13 stormwater utilities in Pennsylvania 19 use an ERU method which is based on
14 impervious area or similar property characteristics.

15 **Q. What do you recommend?**

16 A. I strongly recommend that the Commission order PAWC to develop a stormwater fee to
17 collect stormwater-related costs in the three CSS rate zones (Scranton, McKeesport, and
18 Kane). Collecting stormwater costs based on water consumption or on a per-customer
19 basis is grossly unfair, especially to tenants and smaller properties with little impervious
20 surface area. Moreover, failing to recognize that properties that are not wastewater
21 customers (such as parking lots and others I mentioned above) can contribute

1 significantly to stormwater flows makes the collection of stormwater costs through
2 wastewater rates unduly discriminatory and grossly unreasonable.

3 **Q. Can a separate stormwater rate be established in this case?**

4 A. No. PAWC has not done the work necessary to determine the impervious area of
5 properties and has not identified stormwater-only customers (owners of leased properties,
6 parking lots, etc.). Thus, none of the billing units exist that would be necessary to
7 develop reasonable, cost-based stormwater rates.

8 **Q. Are stormwater-related costs significant in the CSS rate zones?**

9 A. Yes, stormwater-related costs are very significant in the CSS rate zones. I summarize
10 these costs from PAWC's COSS for each zone in Table 1. It can be seen that
11 stormwater-related costs account for approximately 46% of the revenue requirement in
12 these rate zones.

Table 1: Stormwater-related costs as a percent of revenue requirement⁵³			
Rate Area	Revenue Requirement	Stormwater Costs	Stormwater as Percent of Total
Scranton WW	\$34,754,312	\$14,083,139	40.5%
McKeesport WW	30,047,582	16,279,882	54.2%
Kane WW	3,287,466	785,906	23.9%
Total	\$68,089,360	\$31,148,927	45.7%

⁵³ From Schedule D of each COSS, PAWC Exhibits 12-F, 12-G, and 12-H.

1
2 **Q. How do you propose that rates should be set in CSS rate zones in this case?**

3 A. Given the inability to develop defensible stormwater rates in this case, and the
4 Company's improper commingling of stormwater and sanitary sewage costs in its COSS,
5 I propose that existing rates in the CSS rate areas should be increased by an equal
6 percentage (an "across the board" increase).⁵⁴ The COSS in combined sewer areas are
7 driven, in many cases, by stormwater flows and neither water consumption nor the mere
8 number of customers is an appropriate way to collect stormwater-related costs. I
9 recognize that an across-the-board increase perpetuates the inequity inherent in a
10 commingled rate, but any attempt to modify those rates without the necessary data would
11 suffer from the same infirmity and runs the risk of moving rates even further away from
12 the cost of service. I discuss more details about rate design in a later section of this
13 testimony.

14 **Developing a Sound Public Policy on Subsidies, Valuation, and**
15 **Rate Consolidation**

16 ***Relationship between Sections 1311(c) and 1329 of the Public Utility Code***

17 **Q. Your discussion of cost-of-service studies focused on costs before any subsidies.**
18 **What types of subsidies are the Company proposing?**

19 A. The Company is proposing to have its Rate Zone 1 water customers provide tens of
20 millions of dollars in subsidies to water customers in other rate areas and to all
21 wastewater customers.

⁵⁴ There is an exception for the Port Vue rate area of McKeesport that I discuss in the Rate Design section, below.

1 **Q. To the best of your knowledge, are the subsidies based on specific provisions in the**
2 **Public Utility Code?**

3 A. Yes, I am advised by counsel that the relevant statutory provisions are Sections 1311(c)
4 and 1329 of the Code. For a utility like PAWC that provides both water and wastewater
5 service, section 1311(c) allows, but does not require, the Commission to “allocate a
6 portion of the wastewater revenue requirement to the combined water and wastewater
7 customer base if in the public interest.”⁵⁵

8 Section 1329 allows a water or wastewater utility to pay more than depreciated
9 original cost for the assets of other water or wastewater providers, and to include the
10 purchase price (rather than net original cost) in the rate base.⁵⁶ By including the purchase
11 price in rate base, the Company is charging customers higher rates than would have been
12 permitted under original-cost ratemaking. The Commission’s policy of gradually moving
13 toward rate consolidation (also known as single-tariff pricing), in conjunction with any
14 rate increase limits that may be part of the acquisition transaction, can result in Rate Zone
15 1 water customers paying additional subsidies to support the acquired customers.

16 **Q. What subsidies are PAWC proposing for the FPFTY?**

17 A. Table 2 shows that Rate Zone 1 water customers are being asked to provide \$34.6 million
18 in subsidies to other water and wastewater customers, of which \$32.85 million is going to
19 wastewater customers. The breakdown of these amounts by customer class is shown in

⁵⁵ 66 Pa. C.S. § 1311(c).

⁵⁶ 66 Pa. C.S. § 1329(c)(2) states: “The ratemaking rate base of the selling utility shall be the lesser of the purchase price negotiated by the acquiring public utility or entity and selling utility or the fair market value of the selling utility.” 66 Pa. C.S. § 1329(d)(5) states: “The selling utility’s cost of service shall be incorporated into the revenue requirement of the acquiring public utility as part of the acquiring utility’s next base rate case proceeding.”

the Company's response to I&E RS-23-D attached to this testimony. The proposed wastewater subsidies have the effect of increasing Rate Zone 1 water rates by 4.9% (the proposed subsidy to Steelton water increases Zone 1 rates by 0.3%). Stated differently, 41% of the proposed FPFTY Rate Zone 1 increase of \$79.25 million is to provide subsidies to wastewater customers.

Table 2: PAWC Proposed Subsidies from Rate Zone 1 Water Customers⁵⁷

Rate Area	Revenue Requirement	PAWC Proposed Revenues	Subsidy
Steelton water	\$ 5,189,852	\$ 3,413,023	\$ (1,776,829)
Wastewater excl. Sadsbury & Exeter ⁵⁸	33,213,134	30,785,011	(2,428,123)
Exeter WW	15,130,505	11,071,133	(4,059,372)
Sadsbury WW	1,838,386	959,853	(878,533)
Scranton WW	34,754,312	26,297,265	(8,457,047)
McKeesport WW	30,047,582	14,503,073	(15,544,509)
Kane WW	3,287,466	1,803,482	(1,483,984)
Total	\$123,461,237	\$88,832,840	\$ (34,628,397)

Q. Does the magnitude of the subsidies proposed to be paid by water customers concern you?

A. Yes, it does. I am particularly troubled by the proposed subsidies for systems that were acquired using the so-called "fair market value" provisions of Section 1329. The Company makes it seem as if its investors are providing the compensation to selling municipalities, but in fact the Company is requiring its statewide water customers to pay most of the costs associated with the above-cost acquisitions. This is made even more

⁵⁷ From Schedule A of each COSS, except Sadsbury which is from the corrected COSS provided as an attachment to I&E RS-23-D.

⁵⁸ Revenue requirement excludes \$671,275 paid by Sadsbury.

apparent with the Company's proposed Regionalization and Consolidation Surcharge that I discuss below.

Q. Which of the acquisitions in Table 2 took place under Section 1329?

A. All of the acquisitions in Table 2, except Scranton wastewater, occurred under Section 1329. Table 3, compiled from the OCA's records of each transaction and my review of the Commission's docket for each case, summarizes some of the key facts of each transaction. All figures in the table are as of the time of the acquisition. Later I will compare the acquisition rate base to the FPFTY rate base.

**Table 3: Summary of Section 1329 Transactions
(\$ million, except customers)**

Rate Area	Closing Date	Customers	Net Original Cost (\$ million)	§ 1329 Rate Base (\$ million)	Difference (\$ million)	PAWC Cost to Customers @ 14% ⁵⁹
Steelton water	10/9/2019	2,415	14.43	20.50	6.07	0.85
Exeter WW	10/24/2019	9,015	40.06	92.00	51.94	7.27
Sadsbury WW	3/6/2019	998	7.48	8.30	0.82	0.11
McKeesport WW	12/18/2017	12,700	80.09	158.00	77.91	10.91
Kane WW	Not closed	2,019	12.07	17.56	5.49	0.77
Total		27,147	154.13	296.36	142.23	19.91

Q. How do Tables 2 and 3 related to each other?

A. The last column in Table 3 shows the amount by which Section 1329 increased the revenue requirements to PAWC customers -- a total of \$19.91 million. The last column

⁵⁹ Conversion of rate base increase to revenue requirement at 14% is calculated as (income available for return + income taxes + depreciation expense) ÷ original cost rate base. Under the Company's claims for the FPFTY from PAWC Exh. 12-A, this formula is: (\$265.027 million + \$58.721 million + \$143.246 million) ÷ \$3,304.570 million, which equals 14.13%.

in Table 2 shows the amount by which total costs in the acquired systems are proposed to be transferred to Rate Zone 1 water customers. In Table 4, I place these numbers side-by-side and show that, in fact, PAWC's water customers are being asked to bear 100% of the Section 1329 cost increase.

Table 4: PAWC Proposed Percentage of Section 1329 Subsidy to be Paid by Rate Zone 1 Water Customers			
Rate Area	PAWC Proposed Subsidy by Zone 1 Customers (Table 2)	Section 1329 Revenue Requirement Increase (Table 3)	Percent of Section 1329 Increase Borne by Zone 1 Water Customers
Steelton water	(\$1,776,829)	\$ 850,000	100%
Exeter WW	(4,059,372)	7,270,000	56%
Sadsbury WW	(878,533)	110,000	100%
McKeesport WW	(15,544,509)	10,910,000	100%
Kane WW	(1,483,984)	770,000	100%
Total	(\$23,743,227)	\$19,910,000	100%

Table 4 shows that Zone 1 water customers are being asked to provide subsidies totaling \$23.74 million to the systems acquired under Section 1329. That amount includes the entire revenue requirement associated with the increase in rate base caused by Section 1329 (\$19.91 million), plus an additional \$3.8 million to subsidize operating costs in the acquired systems.

Limiting Subsidies Between Water and Wastewater

Q. As you discussed above, Section 1311(c) states the Commission “may allocate a portion of the wastewater revenue requirement to the combined water and wastewater customer base if in the public interest.” To the best of your knowledge,

1 **has the Commission issued any orders, rulemakings, or policy statements that**
2 **indicate how it will use this discretion or determine whether it is “in the public**
3 **interest” to authorize an allocation of the wastewater revenue requirement to water**
4 **customers?**

5 A. No. To the best of my knowledge, as confirmed by OCA’s counsel, the Commission has
6 not issued any orders, policy statements, proposed regulations, or other documents that
7 set forth any criteria for how it would determine whether to use its discretion to permit an
8 allocation of a portion of the wastewater revenue requirement to water customers.

9 **Q. Does the statute contain any guidelines or directives to the Commission on how to**
10 **determine whether such an allocation is in the public interest?**

11 A. No. Based on my reading of the statute, there are no guidelines, directives, or definitions
12 of what it means for such an allocation to be in the public interest. The General
13 Assembly left this matter to the Commission’s discretion.

14 ***Principles to Evaluate the Public Interest***

15 **Q. Based on your experience as both a Pennsylvania regulatory attorney and an expert**
16 **witness on rate design and cost allocation, do you have any recommendations to the**
17 **Commission for how to determine whether such an allocation is in the public**
18 **interest?**

19 A. Yes. At the outset, I recognize that defining the “public interest” can be difficult. There
20 can be more than one aspect of “the public” that is interested in, and affected by, any
21 public policy issue. In this instance, there are at least two distinct elements of the
22 affected public: the utility’s wastewater customers and the utility’s water customers. In

1 addition, establishing a regulatory policy on this issue could affect future acquisitions or
2 divestitures of water or wastewater assets by the utility. So the “public interest” could
3 include a consideration of policies that promote the cost-effective provision of safe and
4 reliable water and wastewater service throughout the Commonwealth.

5 **Q. Is there a range of options the Commission could use to implement Section 1311(c)?**

6 A. Yes, the Commission can choose from a wide variety of options that would be consistent
7 with the language in Section 1311(c), but that might not be consistent with well-
8 established regulatory principles. At one extreme, the Commission could do nothing. As
9 I understand it, Section 1311(c) is discretionary not mandatory. So the Commission
10 could choose to allocate none of the wastewater revenue requirement to water customers.
11 Such a decision would be lawful, but would not accomplish an important purpose of the
12 statute, which is to provide some relief to wastewater customers in relatively small
13 service areas.

14 At the other extreme, the Commission could allocate the entire wastewater
15 revenue requirement to water customers. In this case, under PAWC’s proposed revenue
16 requirement, the cost allocated to water customers would be approximately \$118 million
17 instead of the approximately \$34 million the Company proposed. Adding the extra \$84
18 million to the water revenue requirement would increase rates by 17% compared to the
19 stand-alone revenue requirement of Rate Zone 1. Once again, while providing free
20 wastewater service to some customers might be lawful under Section 1311(c), that does
21 not make it a reasonable regulatory policy. Indeed, providing free wastewater service
22 would violate a number of established regulatory principles, such as ensuring that rates

1 are fair to all customers and that rates send appropriate price signals to discourage
2 wasteful practices.

3 **Q. How do you recommend that the Commission choose among all of the potential**
4 **options between free wastewater service and no relief for wastewater customers?**

5 A. As is often the case when addressing regulatory policy questions, Professor James
6 Bonbright provides some useful and insightful guidance on this issue. Almost 60 years
7 ago, he set forth a series of regulatory principles that continue to guide us today. Over
8 the years, other utility economists and others have suggested some minor modifications
9 to Bonbright's principles, but I believe there is general agreement that the following
10 principles should be considered when establishing and evaluating utility rates:

- 11 • Practicality, including simplicity, understandability, ability to
12 implement, and public acceptability;
- 13 • Clarity in its interpretation;
- 14 • Effectiveness in yielding the total revenue requirement;
- 15 • Stability in revenues from year to year;
- 16 • Continuity of rates, including the concept of gradualism;
- 17 • Fairness in relation to the cost of serving different types of
18 customers;⁶⁰
- 19 • Avoidance of undue discrimination among similarly situated
20 customers; and

⁶⁰ The "fairness" of a utility rate generally means that the rate bears a reasonable relationship to the utility's cost of serving the customer without exceeding the value of service to the customer. See, e.g., James C. Bonbright, *Principles of Public Utility Rates* (New York, NY, 1961) (hereafter "Bonbright"), pp. 82-92; Leonard Saul Goodman, *The Process of Ratemaking* (Arlington, VA, 1998), vol. II, pp. 893-895.

- Encouragement of efficient consumption practices.⁶¹

Bonbright also suggests that the most important of these criteria are adequacy (collection of the revenue requirement), efficiency (encouragement of economically efficient consumption and discouragement of waste), and fairness to all customer classes.⁶² He notes that these criteria are primary “not only because of their widespread acceptance but also because most of the more detailed criteria are ancillary” to these three principles.⁶³

For purposes of evaluating whether it is in the public interest to allow a combined water and wastewater utility to allocate some of the wastewater revenue requirement to water customers, I consider the principles of efficiency and fairness to be paramount. I do not believe that the approach selected would have a major effect on the utility’s ability to collect its revenue requirement, so I do not consider that principle further.

Q. How could allocating a portion of the wastewater revenue requirement to water customers affect the principle of efficiency?

A. The principle of efficiency relates to sending a proper price signal to customers, so that the price accurately reflects the cost of providing the service. This principle helps to ensure that customers are neither encouraged nor discouraged from using an economically efficient amount of the service. In particular, if the price is set below the cost of service, customers may use too much of the service, resulting in an over-use of

⁶¹ Bonbright, p. 291; see also Charles F. Phillips, Jr., *The Regulation of Public Utilities: Theory and Practice* (Arlington, VA, 1993), pp. 434-435.

⁶² Bonbright, p. 292.

⁶³ Id.

1 facilities that can prompt the need for new facilities that would not be required otherwise.

2 An inefficient price that is too low does not necessarily mean that customers will be
3 wasteful, only that they will not take actions they would take otherwise to control their
4 use if the service were priced at its cost. Such decisions can range from the short term
5 (calling a plumber to fix a leaky faucet) to the long term (installing a more efficient
6 appliance or industrial process).

7 Similarly, if the price for a service is set above cost, the customer may be
8 compelled to take actions that would not be taken if the price were set properly. For
9 example, a customer may invest in a new plumbing fixture that would not be cost
10 effective if the price of water had been set appropriately.

11 Allocating a portion of the wastewater revenue requirement to water customers
12 can have the effect of setting wastewater rates too low (below cost) and setting water
13 rates too high (above cost). Where most of the affected customers receive both services
14 from the same utility, this shift would have little or no effect on efficiency because the
15 price of “water service” to the customer is the combined cost of both water and
16 wastewater service.

17 Where the utility serves many water customers who do not receive wastewater
18 service from the same utility, however, shifting costs from wastewater customers to water
19 customers can affect efficiency: wastewater rates would be below the cost of service and
20 water rates would be above cost. In this scenario, most water customers would not see
21 the offsetting benefit of a reduction in their wastewater charges, so the total price for

1 “water service” would exceed cost.⁶⁴ Under this scenario, the few customers who receive
2 both water and wastewater service from the same utility would see a total price for “water
3 service” that is inefficiently low (that is, below cost).

4 Thus, the evaluation of the efficiency principle depends on three factors: (1) the
5 degree to which water customers are also wastewater customers, (2) the amount by which
6 wastewater rates would be reduced below cost, and (3) the amount by which water rates
7 will be increased above cost.

8 **Q. When you refer to a price being “above cost” or “below cost” is that the same as the**
9 **utility’s full cost of service?**

10 A. The measure of cost for efficiency purposes may be different from the utility’s full cost
11 of service. As a matter of economic theory, the price should never be less than the
12 marginal cost of providing service to the customer. Even that price, however, is not
13 sustainable for very long. I would consider a price that at least meets the basic cost of
14 providing service under average (that is, non-peaking) conditions to be the minimum
15 price that should be charged for utility service. For a water utility, this is known as the
16 “base cost of water.” For a wastewater utility, this is called the “flow cost of
17 wastewater.”

18 It is more difficult to estimate the highest price that should be paid. The absolute
19 maximum price would be one that is equal to the value of service received by the
20 customer. In practice, we expect utility prices to be considerably less than the value of

⁶⁴ I use the term “water service” to refer to the cost of having functioning water supply in a home or business. That cost includes both the delivery of potable water and the discharge of wastewater to an appropriate treatment facility.

1 service because utilities have economies of scale and scope that enable them to provide
2 service at a cost that is less than the price an individual customer could obtain on their
3 own (which is one measure of the value to the customer of having centralized utility
4 service). Another concern on the high end of pricing is the affordability of service to the
5 customer. That is, any transfer of revenue requirement responsibility from wastewater to
6 water utilities must ensure that the resulting water rates (that include the wastewater
7 subsidy) would be affordable to customers. On the other hand, the concern with
8 affordability for wastewater customers is one of the factors that could lead to a transfer of
9 wastewater costs to water customers.

10 **Q. How could allocating a portion of the wastewater revenue requirement to water**
11 **customers affect the principle of fairness?**

12 A. The issue of fairness arises when similarly situated customers are treated differently. If
13 most customers are both water and wastewater customers of the same utility, then
14 fairness likely will not be a significant concern. Where, however, most water customers
15 are not also wastewater customers, then fairness could be a significant issue. A water
16 customer who receives its wastewater service from a different provider would be paying
17 its own water costs, its own wastewater costs (to another provider), plus a portion of the
18 costs of wastewater service for the few wastewater customers of the utility. Depending
19 on the magnitude of the subsidy sought by the utility, it may be unfair to ask customers to
20 pay their own wastewater costs plus a portion of wastewater costs for wastewater
21 customers of the utility.

1 Thus, the evaluation of the fairness principle depends on two of the same factors
2 that I described for the efficiency principle: (1) the degree to which water customers are
3 also wastewater customers, and (2) the amount by which water rates will be increased
4 above cost.

5 **Q. How does the provision of stormwater service in the Scranton, McKeesport, and**
6 **Kane areas affect these concerns?**

7 A. PAWC's provision of stormwater service further exacerbates the concerns with fairness.
8 Customers in other parts of PAWC's service area are starting to see separate stormwater
9 charges from their municipalities. For example, PAWC customers in Mount Lebanon,
10 PA (Allegheny County), currently pay PAWC for water, pay for sanitary sewer service
11 treated by the Allegheny County Sanitary Authority (ALCOSAN) at a cost of \$8.50 per
12 1,000 gallons plus \$16.69 per quarter, and pay the Borough of Mount Lebanon \$96.00
13 per year for stormwater control.⁶⁵ So in addition to PAWC water customers paying
14 wastewater charges to other providers, some of them also are paying stormwater charges
15 to other providers. This further tilts the fairness balance toward not requiring water
16 customers to subsidize wastewater and stormwater costs.

⁶⁵ ALCOSAN's rates: <https://www.alcosan.org/our-customers/understanding-your-bill>. Mount Lebanon stormwater rates: <https://www.mtlebanon.org/DocumentCenter/View/16605/Stormwater-Ordinance-3187-and--3303?bidId=>.

Using Section 1311(c) When There is a Significant Acquisition Adjustment

Q. Are there other factors that should affect the Commission's use of its discretion under Section 1311(c)?

A. Yes. Section 1311(c) was enacted based on the assumption that the rate base in wastewater service areas (with minor exceptions for some very small service areas) would be based on the net original cost of the property. Setting the rate base using net original cost serves as a check on the amounts that can be charged to customers -- and on the amounts that potentially could be subsidized by water customers. Using net original cost also eliminated any significant profit motivation that sellers of wastewater systems (primarily municipal entities, since most wastewater in Pennsylvania is provided by municipalities or municipal authorities) may have to artificially inflate the asking price for their utility assets.

The enactment of Section 1329 in 2016, however, significantly changes that calculus. Section 1329 authorizes the acquisition of water and wastewater systems at prices that could be significantly more than the net original cost of the property, as shown above.

This raises the potential that using Section 1311(c) in combination with a Section 1329 acquisition might result in water customers throughout the Commonwealth subsidizing municipal government purposes in a few locations while also promoting profit growth for utility shareholders. Consequently, I believe the Commission should be extremely judicious in its use of its Section 1311(c) discretionary authority particularly when a Section 1329 acquisition is involved.

1 **Q. Are there regulatory mechanisms that have been used in other states to address**
2 **similar concerns?**

3 A. Yes. For example, in Illinois municipalities have the power to tax utilities. To ensure
4 that municipalities do not effectively tax those outside their jurisdiction, however, utility
5 tariffs in Illinois contain separate tax recovery rates for each municipality served. Under
6 this approach, therefore, utility customers pay the utility tax imposed by the municipality
7 in which their property is located.

8 **Q. How could that type of approach be used for a Section 1329 acquisition?**

9 A. From press accounts, it appears that municipalities are using the proceeds of Section 1329
10 acquisitions to provide municipal services that benefit only customers in the
11 municipality.⁶⁶ In trying to balance fairness to new and existing customers, as well as
12 trying to control the magnitude of rate increases that could result from the combined use
13 of Sections 1311(c) and 1329, it would be reasonable to require the Section 1329
14 premium to be paid only by customers in that service area.

15 **Q. Would that be a permanent arrangement?**

16 A. No, not necessarily. As the rates in separate areas providing similar service become close
17 to each other, then rate zones can be consolidated. I expect that this would occur over
18 time as plant is replaced or enhanced in the acquired systems. The combination of new

⁶⁶ See, for example, Deana Carpenter, McKeesport sewer system to be sold for \$156 million, *Pittsburgh Post-Gazette* (Sept. 16, 2016), <https://www.post-gazette.com/local/east/2016/09/16/McKeesport-sells-sewer-authority-for-156-million/stories/201609160031>.

plant investment unrelated to Section 1329 with the depreciation of the Section 1329 purchase price would tend to move rates closer together over time.

Q. What effect would such an approach have in this case?

A. In Table 5, I show the information from Table 4, but with a calculation of the portion of the subsidy that is related to system operations (that is, not include the rate base impact of Section 1329).

Table 5: PAWC Proposed Subsidy Excluding Section 1329 Valuation Increase			
Rate Area	PAWC Proposed Total Subsidy	Section 1329 Rev. Rqmt. Increase	Subsidy Unrelated to Section 1329
Steelton water	(\$1,776,829)	\$850,000	(\$926,829)
Exeter WW	(4,059,372)	7,270,000	(0)
Sadsbury WW	(878,533)	110,000	(768,533)
McKeesport WW	(15,544,509)	10,910,000	(4,634,509)
Kane WW	(1,483,984)	770,000	(713,984)
Total	(\$23,743,227)	\$19,910,000	(\$7,043,855)

Q. How do you interpret the results shown in Table 5?

A. The results in Table 5 show a reasonable level of subsidy that is unrelated to the inflated plant values determined through the Section 1329 process. For example, in McKeesport, it would be reasonable, in my opinion, to have Zone 1 water customers provide a subsidy of \$4.6 million, rather than the \$15.5 million proposed by the Company. Ideally, this would place the burden on McKeesport customers to pay for the costs associated with the municipal services they received (or will receive in the future) from the proceeds of the sale to PAWC. Other PAWC customers, however, would help to pay operating and other costs as a transition to charging full-cost rates to newly acquired customers.

1 **Q. What does a result of zero, as shown for Exeter, mean?**

2 A. A zero means that all of the subsidy proposed by PAWC is associated with the Section
3 1329 increase in revenue requirement. For Exeter, the increase in revenue requirement
4 from the Section 1329 valuation was \$7.27 million. Under the Company's proposed
5 rates, however, Exeter already is paying all of its operating costs and absorbing
6 approximately \$3.2 million of the Section 1329 revenue requirement increase. Thus,
7 there is no need for other PAWC customers to subsidize Exeter's rates. The subsidy
8 proposed by the Company is solely to provide municipal services within Exeter using the
9 proceeds from the sale to PAWC.

10 **Q. If the Company has contractually limited its ability to increase rates, such that the**
11 **entire Section 1329 subsidy cannot be collected from customers, what would**
12 **happen?**

13 A. If that is the case, then the difference should be borne by the Company's investors
14 through a reduced rate of return. In my opinion, a reasonable interpretation of Section
15 1311(c) would be for water customers to help subsidize the actual costs of operating a
16 wastewater system; but not subsidize the provision of unrelated municipal services
17 through the Section 1329 windfall a municipality might receive. If the utility decides to
18 spend significantly more than customers can support through their rates, then the utility's
19 investors (who hired the managers who made the purchase decision) should receive a
20 lower return on their investment.

1 **Q. Can you apply this principle to the Exeter acquisition?**

2 A. Yes. PAWC acquired the Exeter system for \$92 million even though the net original cost
3 of the assets was \$40.06 million. Under PAWC's proposal, Exeter's customers would
4 pay \$11.07 million in revenues.⁶⁷ This represents a 53% increase above current revenues
5 of \$7.23 million.⁶⁸ Proposed rates of \$11.03 million are sufficient to pay all operating
6 costs of the system (\$6.59 million), taxes, and a net after-tax return of approximately
7 \$3.13 million.⁶⁹ At the Company's proposed 7.46% overall return, that return is sufficient
8 to support a rate base of approximately \$42 million. While this is less than the Section
9 1329 acquisition cost of \$92 million, it exceeds the net original cost of the property
10 acquired, which was \$40.06 million, less any depreciation that has accrued since the
11 October 2019 acquisition.

12 **Q. Section 1329 requires the Commission to include the purchase price in the rate base.**
13 **How is your proposal consistent with that requirement?**

14 A. While Section 1329 requires the Commission to include the purchase price (as it may be
15 adjusted by the Commission) in the rate base, the statute does not mandate the rate of
16 return the utility should be permitted to earn on the rate base. The effect of my
17 recommendation would be to reduce the return allowed on the Section 1329 portion of
18 the rate base until the acquired customers can fully support that investment.

⁶⁷ PAWC Exh. 12-D, p. 4.

⁶⁸ *Id.*, p. 3.

⁶⁹ \$11.07 million in revenues - \$6.59 million in operating expenses = \$4.48 million for return and taxes. Dividing by the Company's gross revenue conversion factor of approximately 1.4316 yields return of \$3.127 million. (See PAWC Exh. 12-D, p. 4.)

1 Moreover, the return to the utility is measured by its return on total rate base, not
2 the return on any particular item of property. Thus, in my opinion, adopting this approach
3 would not result in a significant reduction in PAWC's overall return on all of its rate
4 base. Using Exeter as an example, the foregone subsidy would be \$4.06 million which
5 after taxes would result in a reduction of approximately \$2.8 million in income available
6 for return. When compared to the Company's total proposed rate base of \$3,975 million
7 for the FPFTY, the net effect on the Company's overall return on rate base would be a
8 reduction of approximately 0.07%.⁷⁰ From my experience, the uncertainty in rate of
9 return estimates by cost of capital experts usually is much larger than a few hundredths of
10 a percent, so I do not consider this to result in an unreasonable return to the utility's
11 investors.

12 **Q. Please summarize your specific proposal for each of the Section 1329 rate areas.**

13 A. I recommend the Commission implement the increases proposed by PAWC in each of the
14 Section 1329 rate areas, but not the proposed rate reduction in Sadsbury, as shown in
15 Table 6. I do not consider it reasonable to reduce rates in an area when other customers
16 are being asked to subsidize the rates. I also recommend the Commission permit a
17 subsidy from Rate Zone 1 water customers to be paid to each Section 1329 rate area as
18 shown in the same table (the subsidy amounts are taken from Table 5, above). The last
19 three columns of Table 6 estimate the effect of this proposal on the Company's income
20 available for return and overall return as a percentage of its total rate base.

⁷⁰ This discussion uses the Company's filed rate base and rate of return. I am aware that other OCA witnesses are proposing adjustments to those amounts.

Table 6: Summary of OCA Recommendations for Section 1329 Rate Areas

Rate Area	Increase in Sales Revenues⁷¹	Subsidy paid by Zone 1 Water	Subsidy paid by Investors	Est. Change in Income	Est. Change in Return
Steelton water ⁷²	\$589,679	\$926,829	\$850,000	\$593,721	0.0149%
Exeter	2,841,697	0	4,059,372	2,835,452	0.0713%
Sadsbury	0	768,533	110,000	76,834	0.0019%
McKeesport	2,024,332	4,634,509	10,910,000	7,620,583	0.1917%
Kane	315,576	713,984	770,000	537,841	0.0135%
Total	\$5,771,284	\$7,043,855	\$16,699,372	\$11,664,432	0.2934%

Review of Proposed Regionalization and Consolidation Surcharge

Q. Has the Company made any other proposals concerning Section 1329 acquisitions?

A. Yes. PAWC has proposed a new Regionalization and Consolidation Surcharge that is designed to require the Company's existing customers to begin paying for Section 1329 acquisitions between base rate cases. The original proposed tariff was modified in response to OCA VIII-12. That response, which is attached to my testimony, provides a revised version of the proposed water and wastewater tariffs, an illustration of how the surcharge would be calculated, and additional information that is necessary to understand the proposed operation of the surcharge.

Q. Briefly, what is your understanding of the proposed surcharge?

A. As I understand it, the surcharge would be revised each April to reflect the so-called "revenue deficiency" from Section 1329 acquisitions that occurred since the Company's

⁷¹ From Schedule A of the COSS for each rate area, except for Sadsbury where I have eliminated the proposed \$60,000 rate reduction.

⁷² Below I am proposing changes in the Steelton water rate structure and rates that will result in higher revenues than PAWC proposed in the FPFTY.

1 last rate case. The “revenue deficiency” would be calculated for all post-rate-case Section
2 1329 acquisitions as the difference between the annual revenue requirement (return on
3 rate base, taxes, depreciation, and operation and maintenance expenses) and the revenues
4 received from the acquired customers.

5 **Q. Has the Company proposed any limits on the rate increases that would result from**
6 **the proposed surcharge?**

7 A. The Company has proposed limiting the surcharge to no more than 5% of the revenues
8 from existing water and wastewater customers, excluding public fire protection revenues
9 and other surcharge revenues.

10 **Q. How much of a subsidy would that permit the Company to collect from existing**
11 **water and wastewater customers?**

12 A. Table 7 provides an estimate of the maximum annual surcharge based on PAWC’s
13 proposed revenues for the FPFTY. The table shows that the proposed Regionalization
14 and Consolidation Surcharge would permit the Company to collect more than \$38 million
15 annually to support Section 1329 acquisitions. This is approximately twice as much as
16 the \$19.1 million the Company already proposes to collect from Zone 1 water customers
17 for Section 1329 acquisitions in this case (see Table 4, above). Thus, if all of the
18 Company’s proposals are approved, it would be authorized to collect more than \$57
19 million per year to support Section 1329 acquisitions -- or roughly 7.5% of its proposed
20 revenue requirement.

1

Table 7: PAWC Proposed Subsidy Under Regionalization and Consolidation Surcharge	
Rate Zone	Proposed Revenues (Excluding Public Fire)
Main Water	\$694,179,269
Steelton Water	288,607
Main Wastewater (WW)	29,411,453
Exeter WW	10,026,829
Sadsbury WW	952,612
Scranton WW	26,075,165
McKeesport WW	14,298,866
Kane WW	1,783,086
Total revenue base	\$777,015,887
x Maximum surcharge	5.00%
= Max. surcharge revenues	\$ 38,850,794

2

3 **Q. Before discussing your specific concerns with the proposed Regionalization and**
4 **Consolidation Surcharge, how should the Commission determine whether it is**
5 **reasonable and necessary for a large utility to have automatic rate adjustment**
6 **tariffs?**

7 **A.** In addition to any legal constraints that may exist (and that I expect counsel will address
8 in briefs), there are several factors that, in my opinion, the Commission should consider
9 as a matter of sound regulatory policy.

10 Initially, the ratemaking process involves a matching of revenues, expenses,
11 investment, return, customers, and consumption. Automatic rate adjustments for specific
12 expense or capital items break this relationship. The matching principle involves a
13 synchronous examination of the cost of service and sources of revenue, as well other
14 considerations such as the quality of service and efficiency of management. That

1 synchronization is the reason why we use a test year when a rate case is filed. One
2 treatise on utility regulation discusses this synchronization, or the matching principle, as
3 follows:

4 If the utility proposes a change, particularly a major change, in the test
5 year rate base, it is required also to consider the related changes in other
6 costs or in revenue. Additional investments may result in efficiencies that
7 reduce operating costs or quality improvements that will increase sales.
8 Unless the utility shows that it has taken such matters into account, its
9 revenue requirement is likely to be out of balance or overstated.⁷³

10 For example, under normal circumstances, when a utility replaces an aging piece
11 of equipment, it might increase rate base and depreciation expense, but it also could
12 reduce maintenance expenses or produce other cost savings (such as reducing losses). To
13 keep costs synchronized might require adjustments to rate base, depreciation expense,
14 expenses, working capital, and taxes.

15 The use of automatic rate adjustment mechanisms for only certain aspects of the
16 Company's revenue requirement violates the matching principle and helps to destroy the
17 underlying relationship between utility rates and levels of cost and investment.

18 As a general rule, therefore, automatic rate adjustments should be used, if at all,
19 only for significant volatile expenses largely outside the utility's control. A good example
20 of this is a gas cost adjustment for a natural gas utility if the Commission finds that the
21 utility does not have any reasonable level of control over the level of expenditures. A
22 similar justification has been used for surcharges to recover the revenue requirement
23 effect of changes in income tax rates.

⁷³ Leonard Saul Goodman, *The Process of Ratemaking* (1998), vol. II, p. 735.

1 **Q. Why is a utility’s ability to control expenditures an important consideration in**
2 **determining whether an automatic adjustment tariff should be adopted?**

3 A. Automatic rate adjustments remove any incentive for the utility to become more efficient.
4 The ratemaking process is designed to foster management efficiency between rate cases.
5 That is, ratemaking provides an opportunity for a utility to achieve additional profit
6 between rate cases and then to subsequently share these efficiencies with ratepayers in
7 successive rate cases. This aspect of ratemaking provides utility management with a
8 strong incentive to achieve operational efficiencies and to be a zealous negotiator with its
9 suppliers. If the utility can wring additional efficiencies out of its operations or reduce
10 purchasing costs between cases, it can increase earnings for its investors. Likewise, this
11 aspect of ratemaking forces utilities to maintain existing efficiencies to try to ensure that
12 profits do not decline between rate cases. A focus on achieving and maintaining
13 efficiency is a pillar of informed ratemaking. Automatic rate adjustments, however,
14 remove any incentive the utility has to achieve or maintain efficiencies. Under automatic
15 rate adjustment mechanisms, any change in the unit cost of the product, and any change
16 in the amount of the product purchased, would flow directly to captive customers.
17 Failure to obtain available efficiencies, or failure to protect existing efficiencies, can only
18 lead to ever-increasing utility rates. As an example, if a utility were allowed to
19 automatically recover the cost of heating and cooling its office buildings, there would be
20 no incentive for the utility to try to find a lower-cost energy supplier, invest in insulation
21 or re-program the thermostats in its buildings – actions that most every other business
22 would take in response to changes in energy costs.

1 So, as a matter of public policy – that is, as a way to ensure that utilities retain the
2 incentive to improve efficiency between rate cases – automatic rate adjustments should
3 not be used for costs that the utility has the ability to control.

4 **Q. Are there other factors that should be considered in determining whether an**
5 **automatic rate adjustment is appropriate?**

6 A. Yes, in addition to the matching principle and a utility's ability to control the cost, the
7 Commission also should consider whether the cost is related to other expenditures that
8 are not subject to the adjustment mechanism (that is, what trade-offs exist and are they
9 reasonable).

10 **Q. Please discuss what you mean by trade-offs and why that is an important policy**
11 **consideration.**

12 A. Let me use a simple example. Let's assume a utility has an automatic rate adjustment to
13 recover its postage expenses for sending bills to customers. A utility could increase or
14 decrease its postage costs by changing the manner in which it provides other billing
15 options to customers (such as electronic or on-line billing). If a utility eliminated its
16 electronic billing operations, it would greatly increase its postage expenses while saving
17 itself substantial computer-related costs. With an automatic postage expense flow-
18 through, the resulting increase in postage expense would be recovered automatically from
19 customers, but the utility would get to retain all of the cost savings from reduced
20 computer expenses. Similarly, such an adjustment mechanism would provide an
21 incentive for the utility to avoid enhancing the efficiency of its billing efforts because it
22 would be unable to recover any additional savings for its shareholders between rate cases.

1 This example shows how an automatic rate adjustment can adversely skew the
2 normal evaluation of new technologies or processes that might improve efficiency and
3 save costs in the long term. The unreasonable trade-off occurs when one aspect of the
4 cost is recognized automatically, but another aspect is not.

5 **Q. Earlier, you mentioned the volatility of the expense. Please describe what you mean.**

6 A. Volatility relates to how much the expense varies over time. If an expense is relatively
7 stable, there is no reason to have a special ratemaking process – and the costs it entails –
8 to recover relatively minor changes in costs. Volatility helps the Commission determine
9 whether it is worth the effort (and potential customer concern) to automatically adjust
10 rates between base rate cases.

11 **Q. Do you support the proposed Regionalization and Consolidation Surcharge?**

12 A. No, I do not. The proposed surcharge fails to meet the criteria for a surcharge I outlined
13 above. The surcharge proposal relates to costs that are fully within the Company's control
14 -- both as to the amount and timing of the expenditure. Further, there is a potential for
15 there to be significant trade-offs or efficiencies that come from an acquisition that would
16 not be captured in the proposed surcharge. For example, most acquisitions include
17 personnel and not just physical assets. The addition of skilled people to the Company's
18 workforce could lead the Company to reduce its reliance on outside contractors or
19 enhance efficiency in other ways. The proposed surcharge would include the cost of the
20 new employees, but would not reflect any potential savings in outside contractor
21 expenditures or other efficiencies.

1 **Q. What other concerns do you have with the proposed surcharge?**

2 A. As I explained in the previous section, I have serious concerns with the size of subsidies
3 PAWC is asking Zone 1 water customers to pay. The inter-relationship between Section
4 1329 and Section 1311(c) is causing Zone 1 water rates to increase by a significant
5 amount -- tens of millions of dollars per year -- under the Company's proposals. These
6 are amounts that have absolutely nothing to do with the provision of safe and reliable
7 service to Zone 1 water customers. Indeed, most of the cost is coming from newly
8 acquired wastewater systems, so Zone 1 water customers are paying their own water,
9 wastewater, and (in some cases) stormwater costs, and also paying millions of dollars
10 annually to help subsidize someone else's wastewater and (in some instances) stormwater
11 bills.

12 **Q. Are there any other problems with the proposed surcharge?**

13 A. Yes, the surcharge amount is calculated based on revenues from all existing water and
14 wastewater customers. Under the Company's proposals, however, existing wastewater
15 customers are not even paying their own cost of service. It is neither just nor reasonable
16 to require customers who (according to the Company) cannot even pay their own cost of
17 service to bear a further rate increase that will be used to provide a subsidy to other,
18 newly acquired, customers. If wastewater and Steelton water customers can afford to pay
19 higher rates that money should be used to reduce the subsidies paid by Zone 1 water
20 customers; not to provide even more subsidies to newly acquired customers.

1 **Q. Are there other public policy reasons, in your opinion, to oppose the proposed**
2 **Regionalization and Consolidation Surcharge?**

3 A. Yes. The underlying premise of Section 1329 is that acquisition prices will be based on
4 an arms' length negotiations. An arms' length negotiation requires a tension between the
5 buyer and seller -- the buyer wants to pay as little as possible and the seller wants to
6 receive as much as possible. The arms' length negotiated price is a compromise between
7 those two extremes. In Section 1329 negotiations, however, there is no incentive for the
8 buyer to pay as little as possible. In fact, the profit motivation is for the buyer to pay as
9 much as possible, subject only to the amount that can be justified by an appraisal. In
10 other words, there is no tension between the buyer and seller -- both want the price to be
11 as high as can be justified by the appraisals.

12 The only potential check on the process (as it currently exists) is that the utility's
13 investors bear the cost of supporting a portion of the purchase price until the conclusion
14 of its next base rate case. This does not appear to be much of a check on the process, but
15 it at least provides a modest incentive to control the purchase price.

16 The proposed Regionalization and Consolidation Surcharge would remove even
17 that modest check on the process. Rather than investors paying to support a portion of
18 the purchase price between rate cases (perhaps for a year or two), investors would be at
19 risk for only a few months (between the time of closing and the end of the calendar year).

20 As I explained above, I would prefer for investors to have a greater incentive to
21 control the size of the purchase price by being required to support the capital that cannot
22 be supported by the rates of the acquired customers. Under no circumstances, however,
23 should investors' risks be lessened further.

1 **Q. What do you recommend?**

2 A. I recommend the Commission reject the proposed Regionalization and Consolidation
3 Surcharge as being contrary to the public interest and neither just nor reasonable.

4 **Residential Rate Design - Water**

5 **Overview**

6 **Q. Please describe your understanding of the Company's present and proposed rates**
7 **for Residential water customers.**

8 A. For the FPFTY, the Company projects it will have approximately 612,000 Residential
9 customers in Zone 1, approximately 1,700 Residential customers in Steelton (Zone 5),
10 and another 1,300 customers spread out over four additional rate zones. All but
11 approximately 100 of those customers have meters that are 1-1/2 inches or smaller in
12 diameter.

13 Under existing rates, PAWC charges a customer charge that varies by meter size.
14 In Zone 1, the existing meter charges range from \$16.50 per month for a 5/8-inch meter
15 to \$67.90 per month for a 1-1/2-inch meter. In addition, present rates have a
16 consumption charge of \$1.2217 per 100 gallons. When the existing DSIC and TCJA
17 surcharges are considered (+5.65% and -6.79%, respectively), the effective 5/8-inch
18 customer charge currently is \$16.25 per month, and the effective rate per 100 gallons is
19 \$1.2031 per 100 gallons.

20 In Zone 2 (Nittany, Sutton Hills, All Seasons, Balsinger, and Berry Hollow) and
21 Zone 3 (McEwensville), the meter charges are the same, but the consumption charges

1 differ from Zone 1. The Zone 2 consumption charge is \$0.900 per 100 gallons. The
2 Zone 3 charge is \$0.500 per 100 gallons.

3 The rates in Zone 4 (Turbotville) are structured differently. There is a high
4 minimum charge of \$41.03 per month, but that includes the first 3,000 gallons of
5 consumption each month. The next 1,100 gallons are charged at a rate of \$0.9545 per
6 100 gallons, and usage in excess of 4,100 gallons per month is at a rate of \$0.5628 per
7 100 gallons.

8 Zone 5 (Steelton) has lower meter charges and consumption charges than Zone 1.
9 The meter charges range from \$14.78 for a 5/8-inch meter to \$58.29 for a 1-1/2-inch
10 meter, and those rates include the first 1,700 gallons per month. The next 18,300 gallons
11 per month are at a rate of \$0.8260 per 100 gallons. There are additional rates for usage in
12 excess of 20,000 gallons per month, but those rates would not apply to a typical
13 Residential customer.⁷⁴

14 ***Changes in the Structure of Residential Rates***

15 **Q. Is the Company proposing any changes in the structure of Residential rates for the**
16 **FPFTY?**

17 **A.** Yes, the Company is proposing two changes in the structure of Residential rates. First,
18 PAWC is proposing to charge the same customer charge to Residential customers with
19 meter sizes of 1-1/2 inches or smaller, rather than the current structure based on meter
20 capacity and cost. The Company states that most Residential customers with meters of

⁷⁴ The Company shows some usage by Residential customers in Steelton above 20,000 gallons per month. I expect those customers are apartment buildings or other multi-unit buildings.

1 3/4-inches, 1-inch, or 1-1/2-inch have fire suppression systems.⁷⁵ The Company is
2 concerned that the higher meter charges could be considered a form of “standby charge”
3 for Residential fire suppression systems that is prohibited by Section 1326 of the Public
4 Utility Code.⁷⁶

5 **Q. Has the Company made that proposal consistently in all of its rate zones?**

6 A. No. In Rate Zone 5 (Steelton), the Company is proposing charges for 1-inch and 1-1/2-
7 inch meters that are higher than the 5/8-inch charge (there are no 3/4-inch meters in
8 Steelton).

9 **Q. What is the second structural change proposed by the Company?**

10 A. The second change is in Zone 4 (Turbotville). The Company is proposing to
11 substantially reduce the customer charge and eliminate the minimum usage allowance of
12 3,000 gallons per month. It also is proposing to eliminate any tiering of the rates, so all
13 consumption would be charged at the same rate.

14 **Q. Before you discuss the specific rates, do you support the structural changes in**
15 **Residential rates proposed by the Company?**

16 A. Yes I do, with one caveat. For many years, I have heard and read complaints from
17 Residential water customers about the high meter charges for larger-sized meters. This is
18 the first case in which PAWC has indicated that those larger Residential meters are
19 primarily the result of customers having fire suppression systems. While I believe the

⁷⁵ PAWC St. 4, pp. 28-29.

⁷⁶ Id., citing 66 Pa. C.S. § 1326.

1 Company could justify charging higher rates for more expensive meters, even if the
2 meters are installed solely to support a fire suppression system,⁷⁷ I support the proposal to
3 have all Zone 1 Residential customers with meters of 1-1/2 inches or smaller pay the
4 same monthly customer charge.

5 I would apply the same structure to rates for Steelton (Zone 5) Residential
6 customers. This change would facilitate the ultimate consolidation of Zone 5 rates into
7 Zone 1. It also would eliminate any potential concerns with rate discrimination or with
8 the inadvertent charging of a standby fee for a Residential fire suppression system. In
9 reducing the 1-inch and 1-1/2-inch Residential customer charges in Steelton, however, I
10 would eliminate the minimum usage allowance for customers with those meter sizes.
11 Their customer charges would be decreasing significantly, so this would be an
12 appropriate time to transition to rates that do not contain a minimum allowance.⁷⁸

13 I also support the elimination of the high minimum bill with a minimum usage
14 allowance in Zone 4 (Turbotville). Eliminating the minimum allowance will give
15 customers more control over their bills, lower the bills for lower-use customers, and not
16 impose a significant increased burden on higher-use customers.

⁷⁷ The Commission's Policy Statement Interpreting Terms Included in 66 Pa. C.S. § 1326 states: "Costs for the upsizing of company-owned service lines and meters, ... are not standby charges for purposes of residential sprinkler systems, and these costs shall be borne by the applicant for service on a one-time basis." 52 Pa. Code § 69.169.

⁷⁸ The transition for Zone 5 customers with 5/8-inch meters is more complicated because their current customer charges are less than the Zone 1 charge. Thus, eliminating the minimum allowance and implementing the Zone 1 customer charge could cause a very significant increase in bills for some customers.

1 **Q. Are you proposing any other changes in the structure of Residential water rates?**

2 A. Yes. I propose to reduce the minimum usage allowance for 5/8-inch meters in Zone 5
3 (Steelton) from 1,700 gallons per month to 1,000 gallons per month, as a transition to the
4 eventual elimination of the minimum allowance. In my discussion of water rates, I make
5 other adjustments to Zone 5 residential rates to ease the transition to a rate structure with
6 a smaller minimum usage allowance.

7 ***Residential Water Rates for FPFTY***

8 **Q. Earlier you described the Company's proposed Residential water rates for the**
9 **FPFTY. One component of those rates is a Zone 1 customer charge of \$18.00 for**
10 **customers with meter sizes from 5/8 inches to 1-1/2 inches. Do you take issue with**
11 **that customer charge?**

12 A. No, I do not take issue with the proposed Zone 1 customer charge of \$18.00 per month
13 for a 5/8-inch meter. The proposed customer charge of \$18.00 per month is higher than
14 the direct customer-related cost for a 5/8-inch meter, which the Company calculates to be
15 \$17.06 per month.⁷⁹ When the calculation is adjusted to reflect PAWC's proposal to
16 charge Residential customers with meters from 3/4-inches to 1-1/2 inches the 5/8-inch
17 charge, and to recognize the reduced rates paid by low-income customers,⁸⁰ the direct
18 customer cost per Residential bill is approximately \$17.72 per month (approximately a
19 9% increase over the currently effective charge of \$16.25 per month for a 5/8-inch meter

⁷⁹ PAWC Exh. 12-A, p. A-46.

⁸⁰ My calculation is based on the Company's proposed customer charges for low-income customers. If the discount were to be changed as OCA witness Colton recommends, an \$18.00 customer charge would remain sufficient to collect the costs associated with the discount.

1 customer). In the context of the proposed 12.7% increase for the FPFTY, I consider it
2 reasonable to round this charge up to \$18.00 per month. As I explain below, if the
3 Commission finds that the revenue requirement is less than the Company proposed, all
4 Zone 1 charges (including the customer charge) should be scaled back proportionately.

5 **Q. Another element of Residential water rate design you discussed is the minimum**
6 **usage allowance in Steelton. You recommended reducing the allowance to 1,000**
7 **gallons per month from 1,700 gallons per month for 5/8-inch customers, and**
8 **eliminating the allowance for Residential customers with 1-inch or 1-1/2-inch**
9 **meters. Are you also proposing a change in the rates paid by Zone 5 (Steelton)**
10 **customers?**

11 A. Yes. I recommended above that the Commission not adopt PAWC's proposal to have a
12 MYRP in this case. That is, the rates for the FPFTY in early 2021 should remain in
13 effect until the Company's next base rate case. The Company recognizes that the
14 settlement involving the acquisition of the Steelton system limited the Company to
15 proposing an increase of no more than 40% in this case.⁸¹ The Company divided that
16 increase between 2021 and 2022. I do not disagree with the use of a 40% increase as the
17 upper limit on Steelton's rates in this case, but I recommend using the 40% cap as the
18 limit on the increase for Zone 5 for 2021.

19 Based on all of these factors -- the 40% rate increase limitation and the structural
20 changes I proposed in Zone 5 Residential rates -- I recommend that the existing 5/8-inch
21 customer charge of \$14.78 per month for a 5/8-inch meter be kept in place and that the

⁸¹ Docket No. A-2019-3006880, Joint Petition for Approval of Settlement of All Issues, ¶ 25.

1 volumetric rate be set at \$1.000 per 100 gallons for all Residential usage. Residential
2 customers with 5/8-inch meters would receive 1,000 gallons per month as part of the
3 customer charge (compared to 1,700 gallons per month at present). Residential
4 customers with meters larger than 5/8-inches would not receive any minimum allowance
5 (but their meter charges would be much lower than they are at present).

6 Under the Company's proposed revenue requirement, the largest percentage
7 increase to any customer would be a customer who uses exactly 1,700 gallons in a month
8 (the current minimum allowance). That bill would increase from \$14.78 to \$21.78, an
9 increase of \$7.00 per month, or 47.4%. Most Residential bills (those using more than
10 3,000 gallons per month) would have increases in the range of 25% to 35%.⁸²

11 ***Residential Water Rate Design Summary***

12 **Q. Please summarize your rate design recommendations for Residential water rates.**

13 A. In summary, I support the Company's proposal to charge the same customer charges for
14 Residential customers with meters ranging from 5/8-inches to 1-1/2 inches in diameter. I
15 also agree that a Residential customer charge (for 5/8-inch to 1-1/2-inch meters) of
16 \$18.00 per month is reasonable under the Company's proposed revenue requirement for
17 the FPFTY.

18 For Zone 5 (Steelton), I also would have Residential customers with meters from
19 5/8-inches to 1-1/2 inches pay the same customer charge, but that charge would be
20 \$14.58 per month. As part of that change in Steelton, I would eliminate the minimum
21 usage allowance for Residential customers with meters larger than 5/8-inches, and reduce

⁸² The Company states that the average Residential 5/8 bill is for 3,458 gallons per month. PAWC Exh. 12-J, p. 19.

1 the minimum allowance for Residential 5/8-inch meter customers to 1,000 gallons per
2 month. I propose that all Residential consumption above any minimum allowance in
3 Zone 5 should pay a rate of \$1.000 per 100 gallons.

4 I also support the Company's proposal to reduce the customer charges and
5 eliminate the minimum usage allowance in Zone 4 (Turbotville).

6 **Residential Rate Design - Wastewater**

7 **Overview of Wastewater Rates**

8 **Q. Please summarize your understanding of the Company's existing wastewater rates.**

9 A. The Company has 10 different rate areas for wastewater service. The rates vary
10 significantly from one area to another, with current customer charges ranging from \$7.50
11 in Turbotville (Zone 8) to \$30 or more per month in Koppel, McKeesport, and Kane.
12 Often those higher customer charges are coupled with a large minimum usage allowance.
13 PAWC also has a wastewater rate area where all customers receive flat-rate service at a
14 cost of either \$75.10 or \$54.60 per month (Franklin Township) depending on the
15 treatment used to serve the customer.

16 **Q. What is your understanding of the Company's general approach to setting**
17 **wastewater rates for the FPFTY in this case?**

18 A. It appears to me that the Company is guided by two main goals: complying with the
19 provisions of any Commission orders or settlements for acquired systems; and moving
20 toward rate consolidation and the elimination of minimum usage allowances.

1 **Q. Are those reasonable goals?**

2 A. Yes, those goals are reasonable, but they should not be the only goals. As I discussed
3 above, there should be specific criteria that limit the costs transferred to Zone 1 water
4 customers or that otherwise subsidize Section 1329 premiums paid by the Company. In
5 addition, the Company has given more weight to a provision in its Asset Purchase
6 Agreement with Scranton than the Commission is required to give to that provision (as I
7 discuss below). I also find two instances where the Company has proposed extremely
8 large rate increases (more than 50% for many customers), which I also discuss below.

9 **Zone 3 (Scranton Area) Rates**

10 **Q. What is your understanding of present and proposed wastewater rates for Zone 3**
11 **(Scranton Area) Residential customers?**

12 A. The Company's present rates in Zone 3 (Scranton Area) consist of a customer charge of
13 \$19.50 per month and a volumetric charge of \$0.6173 per 100 gallons. PAWC is
14 proposing no increase in the customer charge and a volumetric increase of 16.8% to
15 \$0.7212 per 100 gallons.⁸³ Overall, the Company is proposing increased revenues from
16 Residential wastewater customers in the FPFTY of \$1.17 million, an increase of 8.4%.

17 **Q. Do you have a concern with the Company's proposal for Zone 3?**

18 A. Yes. According to the Company's COSS for Scranton, present revenues are \$23.47
19 million compared to the total cost of service of \$34.75 million, a shortfall of \$11.3
20 million. It would take an increase of almost 50% to bring rates up to the cost of service,

⁸³ Present and proposed rates are from PAWC Exh. 12-N.

1 and I certainly understand why such an increase, in a single step, would not be
2 reasonable. The Company, however, is proposing to make only very slow progress
3 toward closing the gap between costs and revenues -- increasing revenues by \$2.83
4 million in the FPFTY. The remaining \$8.46 million would be passed on to Zone 1 water
5 customers.

6 **Q. Why is the Company proposing to limit the increase in Zone 3 to less than a 12%**
7 **increase when it is proposing much larger increases in other rate zones?**

8 A. The Asset Purchase Agreement in which the Company purchased the Scranton-area
9 wastewater assets limits the amount of increase the Company can propose in any rate
10 case for its first ten years of ownership. The agreement, however, does not limit the
11 increase the Commission can actually authorize in this or any other rate case.

12 **Q. What do you recommend?**

13 A. I recommend that rates in Zone 3 (Scranton Area) should be increased by approximately
14 20%. This is much less than the increases proposed by the Company in other rate areas,
15 it would start to make substantial progress toward closing the gap between revenue
16 requirements and rates, and it would lessen the subsidies paid by Zone 1 water customers.
17 A 20% increase in Zone 3 revenues would increase sales revenues by approximately
18 \$4.66 million (compared to \$2.76 million under the Company's proposal), reducing the
19 Zone 1 water subsidy by \$1.9 million. This would bring revenues to within about \$6
20 million of the Zone 3 proposed revenue requirement, which should make it feasible to
21 have the zone pay cost-based rates within the next two rate cases.

1 **Q. How would you modify Zone 3 rates to collect these additional revenues?**

2 A. As I discussed above, because of the inclusion of significant stormwater costs in the
3 revenue requirement, and the current inability to properly charge those costs to
4 customers, I recommend an across-the-board increase within Zone 3; that is, all rates
5 should increase by the same percentage (approximately 20%).

6 ***Zone 4 (Koppel) Rates***

7 **Q. What is your understanding of present and proposed wastewater rates for Zone 4**
8 **(Koppel) Residential customers?**

9 A. The Company's present rates in Zone 4 (Koppel) consist of a customer charge of \$30.00
10 per month and a volumetric charge of \$0.6500 per 100 gallons. PAWC is proposing to
11 decrease the customer charge to \$11.00 per month and almost triple the volumetric
12 charge to \$1.7631 per 100 gallons.⁸⁴ Overall, the Company is proposing increased
13 revenues from Residential wastewater customers in the FPFTY of \$44,867, an increase of
14 23.55%.

15 **Q. Do you have any concerns with this proposal?**

16 A. Yes, my concern is not with the overall increase to Residential customers, but with the
17 highly disparate impact on customers within the Residential class. According to the
18 Company's calculations, some customers would receive significant decreases in their
19 bills (a customer using no water would have their bill reduced by almost two-thirds)
20 while other customers would see their bills increase by 50% or more. Specifically, the

⁸⁴ Present and proposed rates are from PAWC Exh. 12-K, Schedule 7.

1 Company shows that all customers using 4,000 gallons per month or more would see
2 their bills increase by more than 50%. Customers using more than 10,000 gallons in a
3 month would see their bills increase by 100% or more.⁸⁵

4 **Q. Are non-residential customers facing similar increases in Zone 4?**

5 A. No. The Company is proposing increases of approximately 11% in the FPFTY for each
6 non-residential customer in Zone 4.⁸⁶

7 **Q. What do you recommend?**

8 A. I recommend the Zone 4 Residential customer charge should be decreased to \$24.00 per
9 month (a 20% reduction) and the Residential volumetric charge should be increased by
10 50% to \$0.9750. This would keep the bill impact for most customers under 33% in the
11 FPFTY, with no residential customer receiving an increase of 50% or more. This
12 proposal results in a revenue shortfall, compared to the Company's filing, of
13 approximately \$35,000. This amount can be added to the \$2.4 million subsidy from the
14 sanitary wastewater zones (excluding Sadsbury and Exeter). It would not have a
15 measurable effect on Zone 1 water rates.

⁸⁵ PAWC Exh. 12-K, p. 29.

⁸⁶ Calculated from PAWC Exh. 12-K, pp. 16-17.

Zone 6 (McKeesport) Rates

Q. Please summarize your understanding of present and proposed FPFTY rates in Zone 6 (McKeesport).

A. As I understand it, Zone 6 has two distinct service areas: McKeesport and Port Vue. For most Residential customers (5/8-inch meter), existing rates in McKeesport consist of a customer charge of \$30.70 per month that includes the first 2,000 gallons per month. Wastewater flows in excess of 2,000 gallons per month are billed at the rate of \$1.275 per 100 gallons. PAWC is proposing to eliminate the minimum usage allowance, reduce the customer charge to \$11.00 per month, and increase the volumetric rate to \$1.7631 per 100 gallons. Most Residential customers would have their bills increase by less than 40% under this proposal, while very low-use customers would have their bills decline compared to present rates.⁸⁷ I will not be discussing the McKeesport service area further.

The Port Vue area, however, has very different rates. All Port Vue Residential customers are billed quarterly. Under present rates, they pay \$58.05 per quarter which includes the first 4,000 gallons per quarter of usage. Usage in excess of 4,000 gallons per quarter is billed at a rate of \$0.995 per 100 gallons. PAWC is proposing to eliminate the minimum allowance and charge Port Vue customers exactly the same rates as customers in the McKeesport area. This would result in most Port Vue customers (every customer using 2,000 gallons or more per month) seeing their bills increase by approximately 70%.⁸⁸ I do not consider a 70% increase to be reasonable in the context of this case.

⁸⁷ PAWC Exh. 12-O, p. 18.

⁸⁸ PAWC Exh. 12-O, p. 19.

1 **Q. In response to OCA IV-005, PAWC witness Everett states that the settlement in the**
2 **McKeesport acquisition case requires that Port Vue rates be set equal to the rates**
3 **for all other McKeesport customers. Do you agree?**

4 A. No, I do not agree. The relevant paragraph of the settlement reads as follows:

5 In its first base rate case following the closing of the acquisition, PAWC
6 will propose to establish a rate zone for McKeesport and increase the rates
7 of the System to an amount equal to the Zone 1 wastewater rates of
8 PAWC's wastewater division, unless such increase would be more than
9 two times the system-average increase for the wastewater division
10 (calculated on a percentage increase basis). If the increase for the System
11 would be more than two times the system-average increase of the
12 wastewater division, PAWC will propose that the increase for the System
13 be capped at two times the system-average wastewater division increase in
14 this first base rate case. PAWC, the City and the OCA agree that they will
15 not challenge or oppose this proposal in the first base rate case; provided,
16 however, that the Joint Petitioners expressly recognize the Commission's
17 ultimate ratemaking authority to set just and reasonable rates and,
18 notwithstanding anything to the contrary contained in this paragraph, may
19 enter into a settlement of the base rate case, whether full or partial and
20 whether unanimous or non-unanimous, on reasonable terms and
21 conditions.⁸⁹

22 As I read this language, its intention regarding Port Vue rates is unclear. Under
23 PAWC's proposal, main McKeesport rates would increase by no more than twice the
24 system-average percentage increase, but that is not the case for Port Vue customers. I also
25 note that the settlement contained a separate provision that required the Company's
26 COSS to separately identify certain costs associated with Port Vue.⁹⁰ To my reading, this
27 recognizes the possibility that ratemaking for Port Vue might differ from ratemaking for
28 the remainder of the McKeesport system.

⁸⁹ Docket No. A-2017-2606103, Joint Petition for Approval of Settlement of All Issues, ¶ 20.

⁹⁰ *Id.*, ¶ 19.

1 **Q. How do you interpret the above-quoted provision in the Settlement Agreement that**
2 **limits the McKeesport increase to no more than two times the “system-average**
3 **increase for the wastewater division”?**

4 A. It is unclear exactly how to measure the “system-average increase for the wastewater
5 division” as stated in the Settlement Agreement, since PAWC has proposed six separate
6 wastewater revenue requirements, and those rate areas are having their rates subsidized to
7 different degrees by Zone 1 water customers. As a measure of the wastewater average
8 increase, I am using the sanitary sewer division (excluding Sadsbury and Exeter) which,
9 with no water subsidy, has an increased revenue requirement of approximately 23%.⁹¹
10 Thus, I interpret the rate limitation in the McKeesport settlement to be an increase of no
11 more than 46%.

12 **Q. What do you recommend?**

13 A. I agree with setting the Port Vue customer charge equal to the wastewater Zone 1
14 customer charge of \$11.00 per month (or \$33.00 per quarter) and eliminating the
15 minimum usage allowance. The volumetric charge for Port Vue customers, however,
16 should be limited to a 40% increase, or \$1.393 per 100 gallons. This would ensure that
17 no customer’s bill would increase by more than 46%, while most bills would increase by
18 40% or less.

⁹¹ From PAWC Exhibit 12-C, p. 5: Sales cost of service of \$29.4 million + water subsidy of \$2.4 million = revenue requirement of \$31.8 million compared to present rate revenues of \$25.8 million, which is an increase of 23.26%.

1 Setting rates at these levels would result in a revenue shortfall compared to the
2 Company's proposed FPFTY rates of approximately \$230,000. This shortfall can be
3 added to the water Zone 1 subsidy under Section 1311(c).

4 **Setting Rates to Collect a Lower Revenue Requirement**

5 **Q. If the Commission determines that the FPFTY revenue requirement is less than the**
6 **Company proposed, how should rates be set?**

7 A. If the Commission reduces the revenue requirement in rate zones that are being
8 subsidized by water Zone 1 customers, then the change from the Company's FPFTY
9 revenue requirement should be used first to reduce the water Zone 1 subsidy in
10 proportion to the subsidy paid by each customer class under PAWC's proposal for the
11 FPFTY. Any remaining reduction would be applied proportionally to the rates in the
12 particular rate zone.

13 If the change is to the water Zone 1 revenue requirement, then the reduction
14 should be spread among the customer classes in proportion to each class's cost of service
15 under my COSS. For the Residential class, I would apply that reduction proportionately
16 to both the customer charge and volumetric charge.

17 **Q. Would the same process be used if the Commission agrees with the OCA's revenue**
18 **requirements witnesses that existing rates should be reduced?**

19 A. Yes. As I understand it, the OCA's revenue requirements recommendations are being
20 made separately for each rate zone. There is a substantial reduction in water Zone 1
21 rates, some other zones also should receive a rate reduction, but others would have rate
22 increases. My recommendation, therefore is the same -- reductions in subsidized rate

zones' revenue requirements should be applied first to reduce the water Zone 1 subsidy for that zone. Only after the zone is no longer being subsidized would it be reasonable to reduce the rates paid by customers in that rate zone.

Conclusion

Q. Does this conclude your direct testimony?

A. Yes, it does.

Appendix A

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Attorney + Consultant

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Current Position

Public Utility Attorney and Consultant. 1994 to present. I provide legal, consulting, and expert witness services to various organizations interested in the regulation of public utilities.

Previous Positions

Lecturer in Computer Science, Susquehanna University, Selinsgrove, PA. 1993 to 2000.

Senior Assistant Consumer Advocate, Office of Consumer Advocate, Harrisburg, PA. 1990 to 1994.

I supervised the administrative and technical staff and shared with one other senior attorney the supervision of a legal staff of 14 attorneys.

Assistant Consumer Advocate, Office of Consumer Advocate, Harrisburg, PA. 1983 to 1990.

Associate, Laws and Staruch, Harrisburg, PA. 1981 to 1983.

Law Clerk, U.S. Environmental Protection Agency, Washington, DC. 1980 to 1981.

Research Assistant, Rockville Consulting Group, Washington, DC. 1979.

Current Professional Activities

Member, American Bar Association, Infrastructure and Regulated Industries Section.

Member, American Water Works Association.

Admitted to practice law before the Supreme Court of Pennsylvania, the New York State Court of Appeals, the United States District Court for the Middle District of Pennsylvania, the United States Court of Appeals for the Third Circuit, and the Supreme Court of the United States.

Served as peer reviewer for *Electricity Journal*, *Journal American Water Works Association*, *Journal of Benefit-Cost Analysis*, and *Utilities Policy*.

Previous Professional Activities

Member, American Water Works Association, Rates and Charges Subcommittee, 1998-2001.

Member, Federal Advisory Committee on Disinfectants and Disinfection By-Products in Drinking Water, U.S. Environmental Protection Agency, Washington, DC. 1992 to 1994.

Chair, Water Committee, National Association of State Utility Consumer Advocates, Washington, DC. 1990 to 1994; member of committee from 1988 to 1990.

Member, Board of Directors, Pennsylvania Energy Development Authority, Harrisburg, PA. 1990 to 1994.

Member, Small Water Systems Advisory Committee, Pennsylvania Department of Environmental Resources, Harrisburg, PA. 1990 to 1992.

Member, Ad Hoc Committee on Emissions Control and Acid Rain Compliance, National Association of State Utility Consumer Advocates, 1991.

Member, Nitrogen Oxides Subcommittee of the Acid Rain Advisory Committee, U.S. Environmental Protection Agency, Washington DC. 1991.

Education

J.D. with Honors, George Washington University, Washington, DC. 1981.

B.A. with Distinction in Political Science, Pennsylvania State University, University Park, PA. 1978.

Publications and Presentations (* denotes peer-reviewed publications)

1. "Quality of Service Issues," a speech to the Pennsylvania Public Utility Commission Consumer Conference, State College, PA. 1988.
2. K.L. Pape and S.J. Rubin, "Current Developments in Water Utility Law," in *Pennsylvania Public Utility Law* (Pennsylvania Bar Institute). 1990.
3. Presentation on Water Utility Holding Companies to the Annual Meeting of the National Association of State Utility Consumer Advocates, Orlando, FL. 1990.
4. "How the OCA Approaches Quality of Service Issues," a speech to the Pennsylvania Chapter of the National Association of Water Companies. 1991.
5. Presentation on the Safe Drinking Water Act to the Mid-Year Meeting of the National Association of State Utility Consumer Advocates, Seattle, WA. 1991.
6. "A Consumer Advocate's View of Federal Pre-emption in Electric Utility Cases," a speech to the Pennsylvania Public Utility Commission Electricity Conference. 1991.
7. Workshop on Safe Drinking Water Act Compliance Issues at the Mid-Year Meeting of the National Association of State Utility Consumer Advocates, Washington, DC. 1992.
8. Formal Discussant, Regional Acid Rain Workshop, U.S. Environmental Protection Agency and National Regulatory Research Institute, Charlotte, NC. 1992.
9. S.J. Rubin and S.P. O'Neal, "A Quantitative Assessment of the Viability of Small Water Systems in Pennsylvania," *Proceedings of the Eighth NARUC Biennial Regulatory Information Conference*, National Regulatory Research Institute (Columbus, OH 1992), IV:79-97.
10. "The OCA's Concerns About Drinking Water," a speech to the Pennsylvania Public Utility Commission Water Conference. 1992.
11. Member, Technical Horizons Panel, Annual Meeting of the National Association of Water Companies, Hilton Head, SC. 1992.
12. M.D. Klein and S.J. Rubin, "Water and Sewer -- Update on Clean Streams, Safe Drinking Water, Waste Disposal and Pennvest," *Pennsylvania Public Utility Law Conference* (Pennsylvania Bar Institute). 1992.

13. Presentation on Small Water System Viability to the Technical Assistance Center for Small Water Companies, Pa. Department of Environmental Resources, Harrisburg, PA. 1993
14. "The Results Through a Public Service Commission Lens," speaker and participant in panel discussion at Symposium: "Impact of EPA's Allowance Auction," Washington, DC, sponsored by AER*X. 1993.
15. "The Hottest Legislative Issue of Today -- Reauthorization of the Safe Drinking Water Act," speaker and participant in panel discussion at the Annual Conference of the American Water Works Association, San Antonio, TX. 1993.
16. "Water Service in the Year 2000," a speech to the Conference: "Utilities and Public Policy III: The Challenges of Change," sponsored by the Pennsylvania Public Utility Commission and the Pennsylvania State University, University Park, PA. 1993.
17. "Government Regulation of the Drinking Water Supply: Is it Properly Focused?," speaker and participant in panel discussion at the National Consumers League's Forum on Drinking Water Safety and Quality, Washington, DC. 1993. Reprinted in *Rural Water*, Vol. 15 No. 1 (Spring 1994), pages 13-16.
18. "Telephone Penetration Rates for Renters in Pennsylvania," a study prepared for the Pennsylvania Office of Consumer Advocate. 1993.
19. "Zealous Advocacy, Ethical Limitations and Considerations," participant in panel discussion at "Continuing Legal Education in Ethics for Pennsylvania Lawyers," sponsored by the Office of General Counsel, Commonwealth of Pennsylvania, State College, PA. 1993.
20. "Serving the Customer," participant in panel discussion at the Annual Conference of the National Association of Water Companies, Williamsburg, VA. 1993.
21. "A Simple, Inexpensive, Quantitative Method to Assess the Viability of Small Water Systems," a speech to the Water Supply Symposium, New York Section of the American Water Works Association, Syracuse, NY. 1993.
22. * S.J. Rubin, "Are Water Rates Becoming Unaffordable?," *Journal American Water Works Association*, Vol. 86, No. 2 (February 1994), pages 79-86.
23. "Why Water Rates Will Double (If We're Lucky): Federal Drinking Water Policy and Its Effect on New England," a briefing for the New England Conference of Public Utilities Commissioners, Andover, MA. 1994.
24. "Are Water Rates Becoming Unaffordable?," a speech to the Legislative and Regulatory Conference, Association of Metropolitan Water Agencies, Washington, DC. 1994.
25. "Relationships: Drinking Water, Health, Risk and Affordability," speaker and participant in panel discussion at the Annual Meeting of the Southeastern Association of Regulatory Commissioners, Charleston, SC. 1994.
26. "Small System Viability: Assessment Methods and Implementation Issues," speaker and participant in panel discussion at the Annual Conference of the American Water Works Association, New York, NY. 1994.

27. S.J. Rubin, "How much should we spend to save a life?," *Seattle Journal of Commerce*, August 18, 1994 (Protecting the Environment Supplement), pages B-4 to B-5.
28. S. Rubin, S. Bernow, M. Fulmer, J. Goldstein, and I. Peters, *An Evaluation of Kentucky-American Water Company's Long-Range Planning*, prepared for the Utility and Rate Intervention Division, Kentucky Office of the Attorney General (Tellus Institute 1994).
29. S.J. Rubin, "Small System Monitoring: What Does It Mean?," *Impacts of Monitoring for Phase II/V Drinking Water Regulations on Rural and Small Communities* (National Rural Water Association 1994), pages 6-12.
30. "Surviving the Safe Drinking Water Act," speaker at the Annual Meeting of the National Association of State Utility Consumer Advocates, Reno, NV. 1994.
31. "Safe Drinking Water Act Compliance -- Ratemaking Implications," speaker at the National Conference of Regulatory Attorneys, Scottsdale, AZ. 1995. Reprinted in *Water*, Vol. 36, No. 2 (Summer 1995), pages 28-29.
32. S.J. Rubin, "Water: Why Isn't it Free? The Case of Small Utilities in Pennsylvania," *Utilities, Consumers & Public Policy: Issues of Quality, Affordability, and Competition, Proceedings of the Fourth Utilities, Consumers and Public Policy Conference* (Pennsylvania State University 1995), pages 177-183.
33. S.J. Rubin, "Water Rates: An Affordable Housing Issue?," *Home Energy*, Vol. 12 No. 4 (July/August 1995), page 37.
34. Speaker and participant in the Water Policy Forum, sponsored by the National Association of Water Companies, Naples, FL. 1995.
35. Participant in panel discussion on "The Efficient and Effective Maintenance and Delivery of Potable Water at Affordable Rates to the People of New Jersey," at The New Advocacy: Protecting Consumers in the Emerging Era of Utility Competition, a conference sponsored by the New Jersey Division of the Ratepayer Advocate, Newark, NJ. 1995.
36. J.E. Cromwell III, and S.J. Rubin, *Development of Benchmark Measures for Viability Assessment* (Pa. Department of Environmental Protection 1995).
37. S. Rubin, "A Nationwide Practice from a Small Town in Pa.," *Lawyers & the Internet – a Supplement to the Legal Intelligencer and Pa. Law Weekly* (February 12, 1996), page S6.
38. "Changing Customers' Expectations in the Water Industry," speaker at the Mid-America Regulatory Commissioners Conference, Chicago, IL. 1996, reprinted in *Water* Vol. 37 No. 3 (Winter 1997), pages 12-14.
39. "Recent Federal Legislation Affecting Drinking Water Utilities," speaker at Pennsylvania Public Utility Law Conference, Pennsylvania Bar Institute, Hershey, PA. 1996.
40. "Clean Water at Affordable Rates: A Ratepayers Conference," moderator at symposium sponsored by the New Jersey Division of Ratepayer Advocate, Trenton, NJ. 1996.

41. "Water Workshop: How New Laws Will Affect the Economic Regulation of the Water Industry," speaker at the Annual Meeting of the National Association of State Utility Consumer Advocates, San Francisco, CA. 1996.
42. * E.T. Castillo, S.J. Rubin, S.K. Keefe, and R.S. Raucher, "Restructuring Small Systems," *Journal American Water Works Association*, Vol. 89, No. 1 (January 1997), pages 65-74.
43. * J.E. Cromwell III, S.J. Rubin, F.C. Marrocco, and M.E. Leevan, "Business Planning for Small System Capacity Development," *Journal American Water Works Association*, Vol. 89, No. 1 (January 1997), pages 47-57.
44. "Capacity Development – More than Viability Under a New Name," speaker at National Association of Regulatory Utility Commissioners Winter Meetings, Washington, DC. 1997.
45. * E. Castillo, S.K. Keefe, R.S. Raucher, and S.J. Rubin, *Small System Restructuring to Facilitate SDWA Compliance: An Analysis of Potential Feasibility* (AWWA Research Foundation, 1997).
46. H. Himmelberger, *et al.*, *Capacity Development Strategy Report for the Texas Natural Resource Conservation Commission* (Aug. 1997).
47. Briefing on Issues Affecting the Water Utility Industry, Annual Meeting of the National Association of State Utility Consumer Advocates, Boston, MA. 1997.
48. "Capacity Development in the Water Industry," speaker at the Annual Meeting of the National Association of Regulatory Utility Commissioners, Boston, MA. 1997.
49. "The Ticking Bomb: Competitive Electric Metering, Billing, and Collection," speaker at the Annual Meeting of the National Association of State Utility Consumer Advocates, Boston, MA. 1997.
50. Scott J. Rubin, "A Nationwide Look at the Affordability of Water Service," *Proceedings of the 1998 Annual Conference of the American Water Works Association*, Water Research, Vol. C, No. 3, pages 113-129 (American Water Works Association, 1998).
51. Scott J. Rubin, "30 Technology Tips in 30 Minutes," *Pennsylvania Public Utility Law Conference*, Vol. I, pages 101-110 (Pa. Bar Institute, 1998).
52. Scott J. Rubin, "Effects of Electric and Gas Deregulation on the Water Industry," *Pennsylvania Public Utility Law Conference*, Vol. I, pages 139-146 (Pa. Bar Institute, 1998).
53. Scott J. Rubin, *The Challenges and Changing Mission of Utility Consumer Advocates* (American Association of Retired Persons, 1999).
54. "Consumer Advocacy for the Future," speaker at the Age of Awareness Conference, Changes and Choices: Utilities in the New Millennium, Carlisle, PA. 1999.
55. Keynote Address, \$1 Energy Fund, Inc., Annual Membership Meeting, Monroeville, PA. 1999.

56. Scott J. Rubin, "Assessing the Effect of the Proposed Radon Rule on the Affordability of Water Service," prepared for the American Water Works Association. 1999.
57. Scott J. Rubin and Janice A. Beecher, The Impacts of Electric Restructuring on the Water and Wastewater Industry, *Proceedings of the Small Drinking Water and Wastewater Systems International Symposium and Technology Expo* (Phoenix, AZ 2000), pp. 66-75.
58. American Water Works Association, *Principles of Water Rates, Fees, and Charges, Manual M1 – Fifth Edition* (AWWA 2000), Member, Editorial Committee.
59. Janice A. Beecher and Scott J. Rubin, presentation on "Special Topics in Rate Design: Affordability" at the Annual Conference and Exhibition of the American Water Works Association, Denver, CO. 2000.
60. Scott J. Rubin, "The Future of Drinking Water Regulation," a speech at the Annual Conference and Exhibition of the American Water Works Association, Denver, CO. 2000.
61. Janice A. Beecher and Scott J. Rubin, "Deregulation Impacts and Opportunities," a presentation at the Annual Conference and Exhibition of the American Water Works Association, Denver, CO. 2000.
62. Scott J. Rubin, "Estimating the Effect of Different Arsenic Maximum Contaminant Levels on the Affordability of Water Service," prepared for the American Water Works Association. 2000.
63. * Janice A. Beecher and Scott J. Rubin, *Deregulation! Impacts on the Water Industry*, American Water Works Association Research Foundation, Denver, CO. 2000.
64. Scott J. Rubin, Methods for Assessing, Evaluating, and Assisting Small Water Systems, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2000.
65. Scott J. Rubin, Consumer Issues in the Water Industry, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2000.
66. "Be Utility Wise in a Restructured Utility Industry," Keynote Address at Be UtilityWise Conference, Pittsburgh, PA. 2000.
67. Scott J. Rubin, Jason D. Sharp, and Todd S. Stewart, "The Wired Administrative Lawyer," *5th Annual Administrative Law Symposium*, Pennsylvania Bar Institute, Harrisburg, PA. 2000.
68. Scott J. Rubin, "Current Developments in the Water Industry," *Pennsylvania Public Utility Law Conference*, Pennsylvania Bar Institute, Harrisburg, PA. 2000.
69. Scott J. Rubin, "Viewpoint: Change Sickening Attitudes," *Engineering News-Record*, Dec. 18, 2000.
70. Janice A. Beecher and Scott J. Rubin, "Ten Practices of Highly Effective Water Utilities," *Opflow*, April 2001, pp. 1, 6-7, 16; reprinted in *Water and Wastes Digest*, December 2004, pp. 22-25.
71. Scott J. Rubin, "Pennsylvania Utilities: How Are Consumers, Workers, and Corporations Faring in the Deregulated Electricity, Gas, and Telephone Industries?" Keystone Research Center. 2001.

-
72. Scott J. Rubin, "Guest Perspective: A First Look at the Impact of Electric Deregulation on Pennsylvania," *LEAP Letter*, May-June 2001, pp. 2-3.
 73. Scott J. Rubin, Consumer Protection in the Water Industry, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2001.
 74. Scott J. Rubin, Impacts of Deregulation on the Water Industry, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2001.
 75. Scott J. Rubin, "Economic Characteristics of Small Systems," *Critical Issues in Setting Regulatory Standards*, National Rural Water Association, 2001, pp. 7-22.
 76. Scott J. Rubin, "Affordability of Water Service," *Critical Issues in Setting Regulatory Standards*, National Rural Water Association, 2001, pp. 23-42.
 77. Scott J. Rubin, "Criteria to Assess the Affordability of Water Service," White Paper, National Rural Water Association, 2001.
 78. Scott J. Rubin, Providing Affordable Water Service to Low-Income Families, presentation to Portland Water Bureau, Portland, OR. 2001.
 79. Scott J. Rubin, Issues Relating to the Affordability and Sustainability of Rates for Water Service, presentation to the Water Utility Council of the American Water Works Association, New Orleans, LA. 2002.
 80. Scott J. Rubin, The Utility Industries Compared – Water, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2002.
 81. Scott J. Rubin, Legal Perspective on Water Regulation, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2002.
 82. Scott J. Rubin, Regulatory Options for Water Utilities, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2002.
 83. Scott J. Rubin, Overview of Small Water System Consolidation, presentation to National Drinking Water Advisory Council Small Systems Affordability Working Group, Washington, DC. 2002.
 84. Scott J. Rubin, Defining Affordability and Low-Income Household Tradeoffs, presentation to National Drinking Water Advisory Council Small Systems Affordability Working Group, Washington, DC. 2002.
 85. Scott J. Rubin, "Thinking Outside the Hearing Room," *Pennsylvania Public Utility Law Conference*, Pennsylvania Bar Institute, Harrisburg, PA. 2002.
 86. Scott J. Rubin, "Update of Affordability Database," White Paper, National Rural Water Association. 2003.
 87. Scott J. Rubin, *Understanding Telephone Penetration in Pennsylvania*, Council on Utility Choice, Harrisburg, PA. 2003.

88. Scott J. Rubin, *The Cost of Water and Wastewater Service in the United States*, National Rural Water Association, 2003.
89. Scott J. Rubin, What Price Safer Water? Presentation at Annual Conference of National Association of Regulatory Utility Commissioners, Atlanta, GA. 2003.
90. George M. Aman, III, Jeffrey P. Garton, Eric Petersen, and Scott J. Rubin, Challenges and Opportunities for Improving Water Supply Institutional Arrangements, *Water Law Conference*, Pennsylvania Bar Institute, Mechanicsburg, PA. 2004.
91. Scott J. Rubin, Serving Low-Income Water Customers. Presentation at American Water Works Association Annual Conference, Orlando, FL. 2004.
92. Scott J. Rubin, Thinking Outside the Bill: Serving Low-Income Water Customers. Presentation at National League of Cities Annual Congress of Cities, Indianapolis, IN. 2004.
93. Scott J. Rubin, Buying and Selling a Water System – Ratemaking Implications, *Pennsylvania Public Utility Law Conference*, Pennsylvania Bar Institute, Harrisburg, PA. 2005.
94. *Thinking Outside the Bill: A Utility Manager's Guide to Assisting Low-Income Water Customers*, American Water Works Association. 2005; Second Edition published in 2014
95. * Scott J. Rubin, "Census Data Shed Light on US Water and Wastewater Costs," *Journal American Water Works Association*, Vol. 97, No. 4 (April 2005), pages 99-110, reprinted in Maxwell, *The Business of Water: A Concise Overview of Challenges and Opportunities in the Water Market.*, American Water Works Association, Denver, CO. 2008.
96. Scott J. Rubin, Review of U.S. Environmental Protection Agency Notice Concerning Revision of National-Level Affordability Methodology, National Rural Water Association. 2006.
97. * Robert S. Raucher, et al., *Regional Solutions to Water Supply Provision*, American Water Works Association Research Foundation, Denver, CO. 2007; 2nd edition published in 2008.
98. Scott J. Rubin, Robert Raucher, and Megan Harrod, The Relationship Between Household Financial Distress and Health: Implications for Drinking Water Regulation, National Rural Water Association. 2007.
99. * John Cromwell and Scott Rubin, *Estimating Benefits of Regional Solutions for Water and Wastewater Service*, American Water Works Association Research Foundation, Denver, CO. 2008.
100. Scott J. Rubin, "Current State of the Water Industry and Stimulus Bill Overview," in *Pennsylvania Public Utility Law* (Pennsylvania Bar Institute). 2009.
101. Scott J. Rubin, Best Practice in Customer Payment Assistance Programs, webcast presentation sponsored by Water Research Foundation. 2009.
102. * Scott J. Rubin, How Should We Regulate Small Water Utilities?, National Regulatory Research Institute. 2009.

-
- 103.* John Cromwell III, et al., *Best Practices in Customer Payment Assistance Programs*, Water Research Foundation, Denver, CO. 2010.
- 104.* Scott J. Rubin, What Does Water Really Cost? Rate Design Principles for an Era of Supply Shortages, Infrastructure Upgrades, and Enhanced Water Conservation, , National Regulatory Research Institute. 2010.
105. Scott J. Rubin and Christopher P.N. Woodcock, Teleseminar: Water Rate Design, National Regulatory Research Institute. 2010.
106. David Monie and Scott J. Rubin, Cost of Service Studies and Water Rate Design: A Debate on the Utility and Regulatory Perspectives, Meeting of New England Chapter of National Association of Water Companies, Newport, RI. 2010.
107. * Scott J. Rubin, A Call for Water Utility Reliability Standards: Regulating Water Utilities' Infrastructure Programs to Achieve a Balance of Safety, Risk, and Cost, National Regulatory Research Institute. 2010.
- 108.* Raucher, Robert S.; Rubin, Scott J.; Crawford-Brown, Douglas; and Lawson, Megan M. "Benefit-Cost Analysis for Drinking Water Standards: Efficiency, Equity, and Affordability Considerations in Small Communities," *Journal of Benefit-Cost Analysis*: Vol. 2: Issue 1, Article 4. 2011.
- 109.Scott J. Rubin, A Call for Reliability Standards, *Journal American Water Works Association*, Vol. 103, No. 1 (Jan. 2011), pp. 22-24.
- 110.Scott J. Rubin, Current Topics in Water: Rate Design and Reliability. Presentation to the Water Committee of the National Association of Regulatory Utility Commissioners, Washington, DC. 2011.
- 111.Scott J. Rubin, Water Reliability and Resilience Standards, *Pennsylvania Public Utility Law Conference* (Pennsylvania Bar Institute). 2011.
- 112.Member of Expert Panel, Leadership Forum: Business Management for the Future, Annual Conference and Exposition of the American Water Works Association, Washington, DC. 2011.
- 113.Scott J. Rubin, Evaluating Community Affordability in Storm Water Control Plans, *Flowing into the Future: Evolving Water Issues* (Pennsylvania Bar Institute). 2011.
- 114.Invited Participant, Summit on Declining Water Demand and Revenues, sponsored by The Alliance for Water Efficiency, Racine, WI. 2012.
- 115.* Scott J. Rubin, Evaluating Violations of Drinking Water Regulations, *Journal American Water Works Association*, Vol. 105, No. 3 (Mar. 2013), pp. 51-52 (Expanded Summary) and E137-E147. Winner of the AWWA Small Systems Division Best Paper Award.
- 116.* Scott J. Rubin, Structural Changes in the Water Utility Industry During the 2000s, *Journal American Water Works Association*, Vol. 105, No. 3 (Mar. 2013), pp. 53-54 (Expanded Summary) and E148-E156.
- 117.* Scott J. Rubin, Moving Toward Demand-Based Residential Rates, *The Electricity Journal*, Vol. 28, No. 9 (Nov. 2015), pp. 63-71, <http://dx.doi.org/10.1016/j.tej.2015.09.021>.

118. Scott J. Rubin, Moving Toward Demand-Based Residential Rates. Presentation at the Annual Meeting of the National Association of State Utility Consumer Advocates, Austin, TX. 2015.
119. * Stacey Isaac Berahzer, et al., *Navigating Legal Pathways to Rate-Funded Customer Assistance Programs: A Guide for Water and Wastewater Utilities*, American Water Works Association, et al. 2017.
120. * Janet Clements, et al., *Customer Assistance Programs for Multi-Family Residential and Other Hard-to-Reach Customers*, Water Research Foundation, Denver, CO. 2017.
121. Scott J. Rubin, Water Costs and Affordability in the US: 1990 to 2015, *Journal American Water Works Association*, Vol. 110, No. 4 (Apr. 2018), pp. 12-16.

Testimony as an Expert Witness

1. *Pa. Public Utility Commission v. Pennsylvania Gas and Water Co. - Water Division*, Pa. Public Utility Commission, Docket R-00922404. 1992. Concerning rate design, on behalf of the Pa. Office of Consumer Advocate.
2. *Pa. Public Utility Commission v. Shenango Valley Water Co.*, Pa. Public Utility Commission, Docket R-00922420. 1992. Concerning cost allocation, on behalf of the Pa. Office of Consumer Advocate
3. *Pa. Public Utility Commission v. Pennsylvania Gas and Water Co. - Water Division*, Pa. Public Utility Commission, Docket R-00922482. 1993. Concerning rate design, on behalf of the Pa. Office of Consumer Advocate
4. *Pa. Public Utility Commission v. Colony Water Co.*, Pa. Public Utility Commission, Docket R-00922375. 1993. Concerning rate design, on behalf of the Pa. Office of Consumer Advocate
5. *Pa. Public Utility Commission v. Dauphin Consolidated Water Supply Co. and General Waterworks of Pennsylvania, Inc.*, Pa. Public Utility Commission, Docket R-00932604. 1993. Concerning rate design and cost of service, on behalf of the Pa. Office of Consumer Advocate
6. *West Penn Power Co. v. State Tax Department of West Virginia*, Circuit Court of Kanawha County, West Virginia, Civil Action No. 89-C-3056. 1993. Concerning regulatory policy and the effects of a taxation statute on out-of-state utility ratepayers, on behalf of the Pa. Office of Consumer Advocate
7. *Pa. Public Utility Commission v. Pennsylvania Gas and Water Co. - Water Division*, Pa. Public Utility Commission, Docket R-00932667. 1993. Concerning rate design and affordability of service, on behalf of the Pa. Office of Consumer Advocate
8. *Pa. Public Utility Commission v. National Utilities, Inc.*, Pa. Public Utility Commission, Docket R-00932828. 1994. Concerning rate design, on behalf of the Pa. Office of Consumer Advocate
9. *An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company*, Ky. Public Service Commission, Case No. 93-434. 1994. Concerning supply and demand planning, on behalf of the Kentucky Office of Attorney General, Utility and Rate Intervention Division.

10. *The Petition on Behalf of Gordon's Corner Water Company for an Increase in Rates*, New Jersey Board of Public Utilities, Docket No. WR94020037. 1994. Concerning revenue requirements and rate design, on behalf of the New Jersey Division of Ratepayer Advocate.
11. *Re Consumers Maine Water Company Request for Approval of Contracts with Consumers Water Company and with Ohio Water Service Company*, Me. Public Utilities Commission, Docket No. 94-352. 1994. Concerning affiliated interest agreements, on behalf of the Maine Public Advocate.
12. *In the Matter of the Application of Potomac Electric Power Company for Approval of its Third Least-Cost Plan*, D.C. Public Service Commission, Formal Case No. 917, Phase II. 1995. Concerning Clean Air Act implementation and environmental externalities, on behalf of the District of Columbia Office of the People's Counsel.
13. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of the Dayton Power and Light Company and Related Matters*, Ohio Public Utilities Commission, Case No. 94-105-EL-EFC. 1995. Concerning Clean Air Act implementation (case settled before testimony was filed), on behalf of the Office of the Ohio Consumers' Counsel.
14. *Kennebec Water District Proposed Increase in Rates*, Maine Public Utilities Commission, Docket No. 95-091. 1995. Concerning the reasonableness of planning decisions and the relationship between a publicly owned water district and a very large industrial customer, on behalf of the Maine Public Advocate.
15. *Winter Harbor Water Company, Proposed Schedule Revisions to Introduce a Readiness-to-Serve Charge*, Maine Public Utilities Commission, Docket No. 95-271. 1995 and 1996. Concerning standards for, and the reasonableness of, imposing a readiness to serve charge and/or exit fee on the customers of a small investor-owned water utility, on behalf of the Maine Public Advocate.
16. *In the Matter of the 1995 Long-Term Electric Forecast Report of the Cincinnati Gas & Electric Company*, Public Utilities Commission of Ohio, Case No. 95-203-EL-FOR, and *In the Matter of the Two-Year Review of the Cincinnati Gas & Electric Company's Environmental Compliance Plan Pursuant to Section 4913.05, Revised Cost*, Case No. 95-747-EL-ECP. 1996. Concerning the reasonableness of the utility's long-range supply and demand-management plans, the reasonableness of its plan for complying with the Clean Air Act Amendments of 1990, and discussing methods to ensure the provision of utility service to low-income customers, on behalf of the Office of the Ohio Consumers' Counsel..
17. *In the Matter of Notice of the Adjustment of the Rates of Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 95-554. 1996. Concerning rate design, cost of service, and sales forecast issues, on behalf of the Kentucky Office of Attorney General.
18. *In the Matter of the Application of Citizens Utilities Company for a Hearing to Determine the Fair Value of its Properties for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon, and to Approve Rate Schedules Designed to Provide such Rate of Return*, Arizona Corporation Commission, Docket Nos. E-1032-95-417, *et al.* 1996. Concerning rate design, cost of service, and the price elasticity of water demand, on behalf of the Arizona Residential Utility Consumer Office.
19. *Cochrane v. Bangor Hydro-Electric Company*, Maine Public Utilities Commission, Docket No. 96-053. 1996. Concerning regulatory requirements for an electric utility to engage in unregulated business enterprises, on behalf of the Maine Public Advocate.

20. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Monongahela Power Company and Related Matters*, Public Utilities Commission of Ohio, Case No. 96-106-EL-EFC. 1996. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
21. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cleveland Electric Illuminating Company and Toledo Edison Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 96-107-EL-EFC and 96-108-EL-EFC. 1996. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
22. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Ohio Power Company and Columbus Southern Power Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 96-101-EL-EFC and 96-102-EL-EFC. 1997. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
23. *An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company (Phase II)*, Kentucky Public Service Commission, Docket No. 93-434. 1997. Concerning supply and demand planning, on behalf of the Kentucky Office of Attorney General, Public Service Litigation Branch.
24. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cincinnati Gas and Electric Co. and Related Matters*, Public Utilities Commission of Ohio, Case No. 96-103-EL-EFC. 1997. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
25. *Bangor Hydro-Electric Company Petition for Temporary Rate Increase*, Maine Public Utilities Commission, Docket No. 97-201. 1997. Concerning the reasonableness of granting an electric utility's request for emergency rate relief, and related issues, on behalf of the Maine Public Advocate.
26. *Testimony concerning H.B. 1068 Relating to Restructuring of the Natural Gas Utility Industry*, Consumer Affairs Committee, Pennsylvania House of Representatives. 1997. Concerning the provisions of proposed legislation to restructure the natural gas utility industry in Pennsylvania, on behalf of the Pennsylvania AFL-CIO Gas Utility Caucus.
27. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cleveland Electric Illuminating Company and Toledo Edison Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 97-107-EL-EFC and 97-108-EL-EFC. 1997. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
28. *In the Matter of the Petition of Valley Road Sewerage Company for a Revision in Rates and Charges for Water Service*, New Jersey Board of Public Utilities, Docket No. WR92080846J. 1997. Concerning the revenue requirements and rate design for a wastewater treatment utility, on behalf of the New Jersey Division of Ratepayer Advocate.
29. *Bangor Gas Company, L.L.C., Petition for Approval to Furnish Gas Service in the State of Maine*, Maine Public Utilities Commission, Docket No. 97-795. 1998. Concerning the standards and public policy

concerns involved in issuing a certificate of public convenience and necessity for a new natural gas utility, and related ratemaking issues, on behalf of the Maine Public Advocate.

30. *In the Matter of the Investigation on Motion of the Commission into the Adequacy of the Public Utility Water Service Provided by Tidewater Utilities, Inc., in Areas in Southern New Castle County, Delaware*, Delaware Public Service Commission, Docket No. 309-97. 1998. Concerning the standards for the provision of efficient, sufficient, and adequate water service, and the application of those standards to a water utility, on behalf of the Delaware Division of the Public Advocate.
31. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cincinnati Gas and Electric Co. and Related Matters*, Public Utilities Commission of Ohio, Case No. 97-103-EL-EFC. 1998. Concerning fuel-related transactions with affiliated companies and the appropriate ratemaking treatment and regulatory safeguards involving such transactions, on behalf of the Ohio Consumers' Counsel.
32. *Olde Port Mariner Fleet, Inc. Complaint Regarding Casco Bay Island Transit District's Tour and Charter Service*, Maine Public Utilities Commission, Docket No. 98-161. 1998. Concerning the standards and requirements for allocating costs and separating operations between regulated and unregulated operations of a transportation utility, on behalf of the Maine Public Advocate and Olde Port Mariner Fleet, Inc.
33. *Central Maine Power Company Investigation of Stranded Costs, Transmission and Distribution Utility Revenue Requirements, and Rate Design*, Maine Public Utilities Commission, Docket No. 97-580. 1998. Concerning the treatment of existing rate discounts when designing rates for a transmission and distribution electric utility, on behalf of the Maine Public Advocate.
34. *Pa. Public Utility Commission v. Manufacturers Water Company*, Pennsylvania Public Utility Commission, Docket No. R-00984275. 1998. Concerning rate design on behalf of the Manufacturers Water Industrial Users.
35. *In the Matter of Petition of Pennsgrove Water Supply Company for an Increase in Rates for Water Service*, New Jersey Board of Public Utilities, Docket No. WR98030147. 1998. Concerning the revenue requirements, level of affiliated charges, and rate design for a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
36. *In the Matter of Petition of Seaview Water Company for an Increase in Rates for Water Service*, New Jersey Board of Public Utilities, Docket No. WR98040193. 1999. Concerning the revenue requirements and rate design for a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
37. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Ohio Power Company and Columbus Southern Power Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 98-101-EL-EFC and 98-102-EL-EFC. 1999. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
38. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Dayton Power and Light Company and Related Matters*, Public Utilities Commission of Ohio, Case No. 98-105-EL-EFC. 1999. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.

39. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Monongahela Power Company and Related Matters*, Public Utilities Commission of Ohio, Case No. 99-106-EL-EFC. 1999. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
40. *County of Suffolk, et al. v. Long Island Lighting Company, et al.*, U.S. District Court for the Eastern District of New York, Case No. 87-CV-0646. 2000. Submitted two affidavits concerning the calculation and collection of court-ordered refunds to utility customers, on behalf of counsel for the plaintiffs.
41. *Northern Utilities, Inc., Petition for Waivers from Chapter 820*, Maine Public Utilities Commission, Docket No. 99-254. 2000. Concerning the standards and requirements for defining and separating a natural gas utility's core and non-core business functions, on behalf of the Maine Public Advocate.
42. *Notice of Adjustment of the Rates of Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 2000-120. 2000. Concerning the appropriate methods for allocating costs and designing rates, on behalf of the Kentucky Office of Attorney General.
43. *In the Matter of the Petition of Gordon's Corner Water Company for an Increase in Rates and Charges for Water Service*, New Jersey Board of Public Utilities, Docket No. WR00050304. 2000. Concerning the revenue requirements and rate design for a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
44. *Testimony concerning Arsenic in Drinking Water: An Update on the Science, Benefits, and Costs*, Committee on Science, United States House of Representatives. 2001. Concerning the effects on low-income households and small communities from a more stringent regulation of arsenic in drinking water.
45. *In the Matter of the Application of The Cincinnati Gas & Electric Company for an Increase in Gas Rates in its Service Territory*, Public Utilities Commission of Ohio, Case No. 01-1228-GA-AIR, *et al.* 2002. Concerning the need for and structure of a special rider and alternative form of regulation for an accelerated main replacement program, on behalf of the Ohio Consumers' Counsel.
46. *Pennsylvania State Treasurer's Hearing on Enron and Corporate Governance Issues*. 2002. Concerning Enron's role in Pennsylvania's electricity market and related issues, on behalf of the Pennsylvania AFL-CIO.
47. *An Investigation into the Feasibility and Advisability of Kentucky-American Water Company's Proposed Solution to its Water Supply Deficit*, Kentucky Public Service Commission, Case No. 2001-00117. 2002. Concerning water supply planning, regulatory oversight, and related issue, on behalf of the Kentucky Office of Attorney General.
48. *Joint Application of Pennsylvania-American Water Company and Thames Water Aqua Holdings GmbH*, Pennsylvania Public Utility Commission, Docket Nos. A-212285F0096 and A-230073F0004. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the Pennsylvania Office of Consumer Advocate.
49. *Application for Approval of the Transfer of Control of Kentucky-American Water Company to RWE AG and Thames Water Aqua Holdings GmbH*, Kentucky Public Service Commission, Case No. 2002-00018. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the Kentucky Office of Attorney General.

50. *Joint Petition for the Consent and Approval of the Acquisition of the Outstanding Common Stock of American Water Works Company, Inc., the Parent Company and Controlling Shareholder of West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 01-1691-W-PC. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the Consumer Advocate Division of the West Virginia Public Service Commission.
51. *Joint Petition of New Jersey-American Water Company, Inc. and Thames Water Aqua Holdings GmbH for Approval of Change in Control of New Jersey-American Water Company, Inc.*, New Jersey Board of Public Utilities, Docket No. WM01120833. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
52. *Illinois-American Water Company, Proposed General Increase in Water Rates*, Illinois Commerce Commission, Docket No. 02-0690. 2003. Concerning rate design and cost of service issues, on behalf of the Illinois Office of the Attorney General.
53. *Pennsylvania Public Utility Commission v. Pennsylvania-American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-00038304. 2003. Concerning rate design and cost of service issues, on behalf of the Pennsylvania Office of Consumer Advocate.
54. *West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 03-0353-W-42T. 2003. Concerning affordability, rate design, and cost of service issues, on behalf of the West Virginia Consumer Advocate Division.
55. *Petition of Seabrook Water Corp. for an Increase in Rates and Charges for Water Service*, New Jersey Board of Public Utilities, Docket No. WR3010054. 2003. Concerning revenue requirements, rate design, prudence, and regulatory policy, on behalf of the New Jersey Division of Ratepayer Advocate.
56. *Chesapeake Ranch Water Co. v. Board of Commissioners of Calvert County*, U.S. District Court for Southern District of Maryland, Civil Action No. 8:03-cv-02527-AW. 2004. Submitted expert report concerning the expected level of rates under various options for serving new commercial development, on behalf of the plaintiff.
57. *Testimony concerning Lead in Drinking Water*, Committee on Government Reform, United States House of Representatives. 2004. Concerning the trade-offs faced by low-income households when drinking water costs increase, including an analysis of H.R. 4268.
58. *West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 04-0373-W-42T. 2004. Concerning affordability and rate comparisons, on behalf of the West Virginia Consumer Advocate Division.
59. *West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 04-0358-W-PC. 2004. Concerning costs, benefits, and risks associated with a wholesale water sales contract, on behalf of the West Virginia Consumer Advocate Division.
60. *Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 2004-00103. 2004. Concerning rate design and tariff issues, on behalf of the Kentucky Office of Attorney General.

61. *New Landing Utility, Inc.*, Illinois Commerce Commission, Docket No. 04-0610. 2005. Concerning the adequacy of service provided by, and standards of performance for, a water and wastewater utility, on behalf of the Illinois Office of Attorney General.
62. *People of the State of Illinois v. New Landing Utility, Inc.*, Circuit Court of the 15th Judicial District, Ogle County, Illinois, No. 00-CH-97. 2005. Concerning the standards of performance for a water and wastewater utility, including whether a receiver should be appointed to manage the utility's operations, on behalf of the Illinois Office of Attorney General.
63. *Hope Gas, Inc. d/b/a Dominion Hope*, West Virginia Public Service Commission, Case No. 05-0304-G-42T. 2005. Concerning the utility's relationships with affiliated companies, including an appropriate level of revenues and expenses associated with services provided to and received from affiliates, on behalf of the West Virginia Consumer Advocate Division.
64. *Monongahela Power Co. and The Potomac Edison Co.*, West Virginia Public Service Commission, Case Nos. 05-0402-E-CN and 05-0750-E-PC. 2005. Concerning review of a plan to finance the construction of pollution control facilities and related issues, on behalf of the West Virginia Consumer Advocate Division.
65. *Joint Application of Duke Energy Corp., et al., for Approval of a Transfer and Acquisition of Control*, Case Kentucky Public Service Commission, No. 2005-00228. 2005. Concerning the risks and benefits associated with the proposed acquisition of an energy utility, on behalf of the Kentucky Office of the Attorney General.
66. *Commonwealth Edison Company proposed general revision of rates, restructuring and price unbundling of bundled service rates, and revision of other terms and conditions of service*, Illinois Commerce Commission, Docket No. 05-0597. 2005. Concerning rate design and cost of service, on behalf of the Illinois Office of Attorney General.
67. *Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc.*, Pennsylvania Public Utility Commission, Docket No. R-00051030. 2006. Concerning rate design and cost of service, on behalf of the Pennsylvania Office of Consumer Advocate.
68. *Central Illinois Light Company d/b/a AmerenCILCO, Central Illinois Public Service Company d/b/a AmerenCIPS, and Illinois Power Company d/b/a AmerenIP, proposed general increases in rates for delivery service*, Illinois Commerce Commission, Docket Nos. 06-0070, et al. 2006. Concerning rate design and cost of service, on behalf of the Illinois Office of Attorney General.
69. *Grens, et al., v. Illinois-American Water Co.*, Illinois Commerce Commission, Docket Nos. 5-0681, et al. 2006. Concerning utility billing, metering, meter reading, and customer service practices, on behalf of the Illinois Office of Attorney General and the Village of Homer Glen, Illinois.
70. *Commonwealth Edison Company Petition for Approval of Tariffs Implementing ComEd's Proposed Residential Rate Stabilization Program*, Illinois Commerce Commission, Docket No. 06-0411. 2006. Concerning a utility's proposed purchased power phase-in proposal, in behalf of the Illinois Office of Attorney General.
71. *Illinois-American Water Company, Application for Approval of its Annual Reconciliation of Purchased Water and Purchased Sewage Treatment Surcharges Pursuant to 83 Ill. Adm. Code 655*, Illinois Commerce

- Commission, Docket No. 06-0196. 2006. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General and the Village of Homer Glen, Illinois.
72. *Illinois-American Water Company, et al.*, Illinois Commerce Commission, Docket No. 06-0336. 2006. Concerning the risks and benefits associated with the proposed divestiture of a water utility, on behalf of the Illinois Office of Attorney General.
73. *Joint Petition of Kentucky-American Water Company, et al.*, Kentucky Public Service Commission, Docket No. 2006-00197. 2006. Concerning the risks and benefits associated with the proposed divestiture of a water utility, on behalf of the Kentucky Office of Attorney General.
74. *Aqua Illinois, Inc. Proposed Increase in Water Rates for the Kankakee Division*, Illinois Commerce Commission, Docket No. 06-0285. 2006. Concerning various revenue requirement, rate design, and tariff issues, on behalf of the County of Kankakee.
75. *Housing Authority for the City of Pottsville v. Schuylkill County Municipal Authority*, Court of Common Pleas of Schuylkill County, Pennsylvania, No. S-789-2000. 2006. Concerning the reasonableness and uniformity of rates charged by a municipal water authority, on behalf of the Pottsville Housing Authority.
76. *Application of Pennsylvania-American Water Company for Approval of a Change in Control*, Pennsylvania Public Utility Commission, Docket No. A-212285F0136. 2006. Concerning the risks and benefits associated with the proposed divestiture of a water utility, on behalf of the Pennsylvania Office of Consumer Advocate.
77. *Application of Artesian Water Company, Inc., for an Increase in Water Rates*, Delaware Public Service Commission, Docket No. 06-158. 2006. Concerning rate design and cost of service, on behalf of the Staff of the Delaware Public Service Commission.
78. *Central Illinois Light Company, Central Illinois Public Service Company, and Illinois Power Company: Petition Requesting Approval of Deferral and Securitization of Power Costs*, Illinois Commerce Commission, Docket No. 06-0448. 2006. Concerning a utility's proposed purchased power phase-in proposal, in behalf of the Illinois Office of Attorney General.
79. *Petition of Pennsylvania-American Water Company for Approval to Implement a Tariff Supplement Revising the Distribution System Improvement Charge*, Pennsylvania Public Utility Commission, Docket No. P-00062241. 2007. Concerning the reasonableness of a water utility's proposal to increase the cap on a statutorily authorized distribution system surcharge, on behalf of the Pennsylvania Office of Consumer Advocate.
80. *Adjustment of the Rates of Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 2007-00143. 2007. Concerning rate design and cost of service, on behalf of the Kentucky Office of Attorney General.
81. *Application of Kentucky-American Water Company for a Certificate of Convenience and Necessity Authorizing the Construction of Kentucky River Station II, Associated Facilities and Transmission Main*, Kentucky Public Service Commission, Case No. 2007-00134. 2007. Concerning the life-cycle costs of a planned water supply source and the imposition of conditions on the construction of that project, on behalf of the Kentucky Office of Attorney General.

82. *Pa. Public Utility Commission v. Pennsylvania-American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-00072229. 2007. Concerning rate design and cost of service, on behalf of the Pennsylvania Office of Consumer Advocate.
83. *Illinois-American Water Company Application for Approval of its Annual Reconciliation of Purchased Water and Purchased Sewage Treatment Surcharges*, Illinois Commerce Commission, Docket No. 07-0195. 2007. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General.
84. *In the Matter of the Application of Aqua Ohio, Inc. to Increase Its Rates for Water Service Provided in the Lake Erie Division*, Public Utilities Commission of Ohio, Case No.07-0564-WW-AIR. 2007. Concerning rate design and cost of service, on behalf of the Office of the Ohio Consumers' Counsel.
85. *Pa. Public Utility Commission v. Aqua Pennsylvania Inc.*, Pennsylvania Public Utility Commission, Docket No. R-00072711. 2008. Concerning rate design, on behalf of the Masthope Property Owners Council.
86. *Illinois-American Water Company Proposed increase in water and sewer rates*, Illinois Commerce Commission, Docket No. 07-0507. 2008. Concerning rate design and demand studies, on behalf of the Illinois Office of Attorney General.
87. *Central Illinois Light Company, d/b/a AmerenCILCO; Central Illinois Public Service Company, d/b/a AmerenCIPS; Illinois Power Company, d/b/a AmerenIP: Proposed general increase in rates for electric delivery service*, Illinois Commerce Commission Docket Nos. 07-0585, 07-0586, 07-0587. 2008. Concerning rate design and cost of service studies, on behalf of the Illinois Office of Attorney General.
88. *Commonwealth Edison Company: Proposed general increase in electric rates*, Illinois Commerce Commission Docket No. 07-0566. 2008. Concerning rate design and cost of service studies, on behalf of the Illinois Office of Attorney General.
89. *In the Matter of Application of Ohio American Water Co. to Increase Its Rates*, Public Utilities Commission of Ohio, Case No. 07-1112-WS-AIR. 2008. Concerning rate design and cost of service, on behalf of the Office of the Ohio Consumers' Counsel.
90. *In the Matter of the Application of The East Ohio Gas Company d/b/a Dominion East Ohio for Authority to Increase Rates for its Gas Service*, Public Utilities Commission of Ohio, Case Nos. 07-829-GA-AIR, et al. 2008. Concerning the need for, and structure of, an accelerated infrastructure replacement program and rate surcharge, on behalf of the Office of the Ohio Consumers' Counsel.
91. *Pa. Public Utility Commission v. Pennsylvania American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-2008-2032689. 2008. Concerning rate design, cost of service study, and other tariff issues, on behalf of the Pennsylvania Office of Consumer Advocate.
92. *Pa. Public Utility Commission v. York Water Company*, Pennsylvania Public Utility Commission, Docket No. R-2008-2023067. 2008. Concerning rate design, cost of service study, and other tariff issues, on behalf of the Pennsylvania Office of Consumer Advocate.

93. *Northern Illinois Gas Company d/b/a Nicor Gas Company*, Illinois Commerce Commission, Docket No. 08-0363. 2008. Concerning rate design, cost of service, and automatic rate adjustments, on behalf of the Illinois Office of Attorney General.
94. *West Virginia American Water Company*, West Virginia Public Service Commission, Case No. 08-0900-W-42T. 2008. Concerning affiliated interest charges and relationships, on behalf of the Consumer Advocate Division of the Public Service Commission of West Virginia.
95. *Illinois-American Water Company Application for Approval of its Annual Reconciliation of Purchased Water and Purchased Sewage Treatment Surcharges*, Illinois Commerce Commission, Docket No. 08-0218. 2008. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General.
96. *In the Matter of Application of Duke Energy Ohio, Inc. for an Increase in Electric Rates*, Public Utilities Commission of Ohio, Case No. 08-0709-EL-AIR. 2009. Concerning rate design and cost of service, on behalf of the Office of the Ohio Consumers' Counsel.
97. *The Peoples Gas Light and Coke Company and North Shore Gas Company Proposed General Increase in Rates for Gas Service*, Illinois Commerce Commission, Docket Nos. 09-0166 and 09-0167. 2009. Concerning rate design and automatic rate adjustments on behalf of the Illinois Office of Attorney General, Citizens Utility Board, and City of Chicago.
98. *Illinois-American Water Company Proposed Increase in Water and Sewer Rates*, Illinois Commerce Commission, Docket No. 09-0319. 2009. Concerning rate design and cost of service on behalf of the Illinois Office of Attorney General and Citizens Utility Board.
99. *Pa. Public Utility Commission v. Aqua Pennsylvania Inc.*, Pennsylvania Public Utility Commission, Docket No. R-2009-2132019. 2010. Concerning rate design, cost of service, and automatic adjustment tariffs, on behalf of the Pennsylvania Office of Consumer Advocate.
100. *Apple Canyon Utility Company and Lake Wildwood Utilities Corporation Proposed General Increases in Water Rates*, Illinois Commerce Commission, Docket Nos. 09-0548 and 09-0549. 2010. Concerning parent-company charges, quality of service, and other matters, on behalf of Apple Canyon Lake Property Owners' Association and Lake Wildwood Association, Inc.
101. *Application of Aquarion Water Company of Connecticut to Amend its Rate Schedules*, Connecticut Department of Public Utility Control, Docket No. 10-02-13. 2010. Concerning rate design, proof of revenues, and other tariff issues, on behalf of the Connecticut Office of Consumer Counsel.
102. *Illinois-American Water Company Annual Reconciliation of Purchased Water and Sewage Treatment Surcharges*, Illinois Commerce Commission, Docket No. 09-0151. 2010. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General.
103. *Pa. Public Utility Commission v. Pennsylvania-American Water Co.*, Pennsylvania Public Utility Commission, Docket Nos. R-2010-2166212, et al. 2010. Concerning rate design and cost of service study for four wastewater utility districts, on behalf of the Pennsylvania Office of Consumer Advocate.
104. *Central Illinois Light Company d/b/a AmerenCILCO, Central Illinois Public Service Company d/b/a AmerenCIPS, Illinois Power Company d/b/a AmerenIP Petition for accounting order*, Illinois Commerce

Commission, Docket No. 10-0517. 2010. Concerning ratemaking procedures for a multi-district electric and natural gas utility, on behalf of the Illinois Office of Attorney General.

105. *Commonwealth Edison Company Petition for General Increase in Delivery Service Rates*, Illinois Commerce Commission Docket No. 10-0467. 2010. Concerning rate design and cost of service study, on behalf of the Illinois Office of Attorney General.
106. *Pa. Public Utility Commission v. City of Lancaster Bureau of Water*, Pennsylvania Public Utility Commission, Docket No. R-2010-2179103. 2010. Concerning rate design, cost of service, and cost allocation, on behalf of the Pennsylvania Office of Consumer Advocate.
107. *Application of Yankee Gas Services Company for Amended Rate Schedules*, Connecticut Department of Public Utility Control, Docket No. 10-12-02. 2011. Concerning rate design and cost of service for a natural gas utility, on behalf of the Connecticut Office of Consumers' Counsel.
108. *California-American Water Company*, California Public Utilities Commission, Application 10-07-007. 2011. Concerning rate design and cost of service for multiple water-utility service areas, on behalf of The Utility Reform Network.
109. *Little Washington Wastewater Company, Inc., Masthope Wastewater Division*, Pennsylvania Public Utility Commission Docket No. R-2010-2207833. 2011. Concerning rate design and various revenue requirements issues, on behalf of the Masthope Property Owners Council.
110. *In the matter of Pittsfield Aqueduct Company, Inc.*, New Hampshire Public Utilities Commission Case No. DW 10-090. 2011. Concerning rate design and cost of service on behalf of the New Hampshire Office of the Consumer Advocate.
111. *In the matters of Pennichuck Water Works, Inc. Permanent Rate Case and Petition for Approval of Special Contract with Anheuser-Busch, Inc.*, New Hampshire Public Utilities Commission Case Nos. DW 10-091 and DW 11-014. 2011. Concerning rate design, cost of service, and contract interpretation on behalf of the New Hampshire Office of the Consumer Advocate.
112. *Artesian Water Co., Inc. v. Chester Water Authority*, U.S. District Court for the Eastern District of Pennsylvania Case No. 10-CV-07453-JP. 2011. Concerning cost of service, ratemaking methods, and contract interpretation on behalf of Chester Water Authority.
113. *North Shore Gas Company and The Peoples Gas Light and Coke Company Proposed General Increases in Rates for Gas Service*, Illinois Commerce Commission, Docket Nos. 11-0280 and 11-0281. 2011. Concerning rate design and cost of service on behalf of the Illinois Office of Attorney General, the Citizens Utility Board, and the City of Chicago.
114. *Ameren Illinois Company: Proposed general increase in electric delivery service rates and gas delivery service rates*, Illinois Commerce Commission, Docket Nos. 11-0279 and 11-0282. 2011. Concerning rate design and cost of service for natural gas and electric distribution service, on behalf of the Illinois Office of Attorney General and the Citizens Utility Board.
115. *Pa. Public Utility Commission v. Pennsylvania-American Water Co.*, Pennsylvania Public Utility Commission, Docket No. R-2011-2232243. 2011. Concerning rate design, cost of service, sales forecast,

and automatic rate adjustments on behalf of the Pennsylvania Office of Consumer Advocate.

116. *Aqua Illinois, Inc. Proposed General Increase in Water and Sewer Rates*, Illinois Commerce Commission, Docket No. 11-0436. 2011. Concerning rate design and cost of service on behalf of the Illinois Office of Attorney General.
117. *City of Nashua Acquisition of Pennichuck Corporation*, New Hampshire Public Utilities Commission, Docket No. DW 11-026. 2011. Concerning the proposed acquisition of an investor-owned utility holding company by a municipality, including appropriate ratemaking methodologies, on behalf of the New Hampshire Office of Consumer Advocate.
118. *An Application by Heritage Gas Limited for the Approval of a Schedule of Rates, Tolls and Charges*, Nova Scotia Utility and Review Board, Case NSUARB-NG-HG-R-11. 2011. Concerning rate design and cost of service, on behalf of the Nova Scotia Consumer Advocate.
119. *An Application of Halifax Regional Water Commission for Approval of a Cost of Service and Rate Design Methodology*, Nova Scotia Utility and Review Board, Case NSUARB-W-HRWC-R-11. 2011. Concerning rate design and cost of service, on behalf of the Nova Scotia Consumer Advocate.
120. *National Grid USA and Liberty Energy Utilities Corp.*, New Hampshire Public Utilities Commission, Docket No. DG 11-040. 2011. Concerning the costs and benefits of a proposed merger and related conditions, on behalf of the New Hampshire Office of Consumer Advocate.
121. *Great Northern Utilities, Inc., et al.*, Illinois Commerce Commission, Docket Nos. 11-0059, et al. 2012. Concerning options for mitigating rate impacts and consolidating small water and wastewater utilities for ratemaking purposes, on behalf of the Illinois Office of Attorney General.
122. *Pa. Public Utility Commission v. Aqua Pennsylvania, Inc.*, Pennsylvania Public Utility Commission, Docket No. R-2011-2267958. 2012. Concerning rate design, cost of service, and automatic rate adjustment mechanisms, on behalf of the Pennsylvania Office of Consumer Advocate.
123. *Golden State Water Company*, California Public Utilities Commission, Application 11-07-017. 2012. Concerning rate design and quality of service, on behalf of The Utility Reform Network.
124. *Golden Heart Utilities, Inc. and College Utilities Corporation*, Regulatory Commission of Alaska, Case Nos. U-11-77 and U-11-78. 2012. Concerning rate design and cost of service, on behalf of the Alaska Office of the Attorney General.
125. *Illinois-American Water Company*, Illinois Commerce Commission, Docket No. 11-0767. 2012. Concerning rate design, cost of service, and automatic rate adjustment mechanisms, on behalf of the Illinois Office of Attorney General.
126. *Application of Tidewater Utilities, Inc., for a General Rate Increase in Water Base Rates and Tariff Revisions*, Delaware Public Service Commission, Docket No. 11-397. 2012. Concerning rate design and cost of service study, on behalf of the Staff of the Delaware Public Service Commission.
127. *In the Matter of the Philadelphia Water Department's Proposed Increase in Rates for Water and Wastewater Utility Services*, Philadelphia Water Commissioner, FY 2013-2016. 2012. Concerning rate

design and related issues for storm water service, on behalf of Citizens for Pennsylvania's Future.

128. *Corix Utilities (Illinois) LLC, Hydro Star LLC, and Utilities Inc. Joint Application for Approval of a Proposed Reorganization*, Illinois Commerce Commission, Docket No. 12-0279. 2012. Concerning merger-related synergy savings and appropriate ratemaking treatment of the same, on behalf of the Illinois Office of Attorney General.
129. *North Shore Gas Company and The Peoples Gas Light and Coke Company*, Illinois Commerce Commission, Docket Nos. 12-0511 and 12-0512. 2012. Concerning rate design, cost of service study, and automatic rate adjustment tariff on behalf of the Illinois Office of Attorney General.
130. *Pa. Public Utility Commission v. City of Lancaster Sewer Fund*, Pennsylvania Public Utility Commission, Docket No. R-2012-2310366. 2012. Concerning rate design, cost of service, and cost allocation, on behalf of the Pennsylvania Office of Consumer Advocate.
131. *Aquarion Water Company of New Hampshire*, New Hampshire Public Utilities Commission, Docket No. DW 12-085. 2013. Concerning tariff issues, including an automatic adjustment clause for infrastructure improvement, on behalf of the New Hampshire Office of Consumer Advocate.
132. *In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Electric Distribution Rates*, Public Utilities Commission of Ohio, Case No. 12-1682-EL-AIR, et al. 2013. Concerning rate design and tariff issues, on behalf of the Office of the Ohio Consumers' Counsel.
133. *In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Natural Gas Distribution Rates*, Public Utilities Commission of Ohio, Case No. 12-1685-GA-AIR, et al. 2013. Concerning cost-of-service study, rate design, and tariff issues, on behalf of the Office of the Ohio Consumers' Counsel.
134. *In the Matter of the Application of The Dayton Power and Light Company to Establish a Standard Service Offer in the Form of an Electric Security Plan*, Public Utilities Commission of Ohio, Case No. 12-426-EL-SSO, et al. 2013. Concerning rate design, on behalf of the Office of the Ohio Consumers' Counsel.
135. *Application of the Halifax Regional Water Commission, for Approval of Amendments to its Schedule of Rates and Charges and Schedule of Rules and Regulations for the delivery of water, public and private fire protection, wastewater and stormwater services*, Nova Scotia Utility and Review Board, Matter No. M05463. 2013. Concerning rate design, cost-of-service study, and miscellaneous tariff provisions, on behalf of the Consumer Advocate of Nova Scotia.
136. *California Water Service Co. General Rate Case Application*, California Public Utilities Commission, Docket No. A.12-07-007. 2013. Concerning rate design, phase-in plans, low-income programs, and other tariff issues, on behalf of The Utility Reform Network.
137. *Application of The United Illuminating Company to Amend its Rate Schedules*, Connecticut Public Utility Regulatory Authority, Docket No. 13-01-19. 2013. Concerning sales forecast, rate design, and other tariff issues, on behalf of the Connecticut Office of Consumer Counsel.
138. *Application of Aquarion Water Company of Connecticut to Amend its Rate Schedules*, Connecticut Public Utility Regulatory Authority, Docket No. 13-02-20. 2013. Concerning sales forecast and rate design on

behalf of the Connecticut Office of Consumer Counsel.

139. *Ameren Illinois Company, Proposed General Increase in Natural Gas Delivery Service Rates*, Illinois Commerce Commission, Docket No. 13-0192. 2013. Concerning rate design and revenue allocation, on behalf of the Illinois Office of Attorney General and Citizens Utility Board.
140. *Commonwealth Edison Company, Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Docket No. 13-0387. 2013. Concerning rate design and cost of service study issues, on behalf of the Illinois Office of Attorney General.
141. *In the Matter of the Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service*, District of Columbia Public Service Commission, Formal Case No. 1103. 2013. Concerning rate design, revenue allocation, and cost-of-service study issues, on behalf of the District of Columbia Office of Peoples' Counsel.
142. *Pa. Public Utility Commission v. Pennsylvania-American Water Co.*, Pennsylvania Public Utility Commission, Docket No. R-2013-2355276. 2013. Concerning rate design, revenue allocation, and regulatory policy, on behalf of the Pennsylvania Office of Consumer Advocate.
143. *In the Matter of the Revenue Requirement and Transmission Tariff Designated as TA364-8 filed by Chugach Electric Association, Inc.*, Regulatory Commission of Alaska, U-13-007. 2013. Concerning rate design and cost-of-service study issues, on behalf of the Alaska Office of the Attorney General.
144. *Ameren Illinois Company: Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Docket No. 13-0476. 2013. Concerning rate design and cost of service study issues, on behalf of the Illinois Office of Attorney General.
145. *Pa. Public Utility Commission v. City of Bethlehem Bureau of Water*, Pennsylvania Public Utility Commission, Docket No. R-2013-2390244. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
146. *In the Matter of the Tariff Revision Designated as TA332-121 filed by the Municipality of Anchorage d/b/a Municipal Light and Power Department*, Regulatory Commission of Alaska, U-13-184. 2014. Concerning rate design and cost-of-service study issues, on behalf of the Alaska Office of the Attorney General.
147. *Pa. Public Utility Commission v. Pike County Light and Power Co. - Gas*, Pennsylvania Public Utility Commission, Docket No. R-2013-2397353. 2014. Concerning rate design and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
148. *Pa. Public Utility Commission v. Pike County Light and Power Co. - Electric*, Pennsylvania Public Utility Commission, Docket No. R-2013-2397237. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
149. *The Peoples Gas Light and Coke Company North Shore Gas Company Proposed General Increase in Rates for Gas Service*, Illinois Commerce Commission, Docket Nos. 14-0224 and 14-0225. 2014. Concerning rate design on behalf of the Illinois Office of the Attorney General and the Environmental

Law and Policy Center.

150. *Apple Valley Ranchos Water Company*, California Public Utilities Commission, Docket No. A.14-01-002. 2014. Concerning rate design and automatic rate adjustment mechanisms on behalf of the Town of Apple Valley.
151. *Application by Heritage Gas Limited for Approval to Amend its Franchise Area*, Nova Scotia Utility and Review Board, Matter No. M06271. 2014. Concerning criteria, terms, and conditions for expanding a utility's service area and using transported compressed natural gas to serve small retail customers, on behalf of the Nova Scotia Consumer Advocate.
152. *Notice of Intent of Entergy Mississippi, Inc. to Modernize Rates to Support Economic Development, Power Procurement, and Continued Investment*, Mississippi Public Service Commission Docket No. 2014-UN-132. 2014. Concerning rate design and tariff issues, on behalf of the Mississippi Public Utilities Staff.
153. *Pa. Public Utility Commission v. City of Lancaster Bureau of Water*, Pennsylvania Public Utility Commission, Docket No. R-2014-2418872. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
154. *Pa. Public Utility Commission v. Borough of Hanover Municipal Water Works*, Pennsylvania Public Utility Commission, Docket No. R-2014-2428304. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
155. *Investigation of Commonwealth Edison Company's Cost of Service for Low-Use Customers in Each Residential Class*, Illinois Commerce Commission, Docket No. 14-0384. 2014. Concerning rate design on behalf of the Illinois Office of Attorney General.
156. *Application of the Halifax Regional Water Commission, for Approval of its Schedule of Rates and Charges and Schedule of Rules and Regulations for the Provision of Water, Public and Private Fire Protection, Wastewater and Stormwater Services*, Nova Scotia Utility and Review Board, Matter No. M06540. 2015. Concerning rate design, cost of service study, and tariff issues on behalf of the Nova Scotia Consumer Advocate.
157. *Testimony concerning organization and regulation of Philadelphia Gas Works*, Philadelphia City Council's Special Committee on Energy Opportunities. 2015.
158. *Testimony concerning proposed telecommunications legislation*, Maine Joint Standing Committee on Energy, Utilities, and Technology. 2015.
159. *Pa. Public Utility Commission v. United Water Pennsylvania, Inc.*, Pennsylvania Public Utility Commission, Docket No. R-2015-2462723. 2015. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
160. *Ameren Illinois Company Proposed General Increase in Gas Delivery Service Rates*, Illinois Commerce Commission, Docket No. 15-0142. 2015. Concerning rate design on behalf of the Illinois Office of Attorney General.

161. *Maine Natural Gas Company Request for Multi-Year Rate Plan*, Maine Public Utilities Commission, Docket No. 2015-00005. 2015. Concerning rate design and automatic rate adjustment tariffs on behalf of the Maine Office of the Public Advocate.
162. *Application of Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company for Authority to Provide for a Standard Service Offer*, Public Utilities Commission of Ohio, Case No. 14-1297-EL-SSO. 2015. Concerning rate design and proposed rate discounts on behalf of the Office of the Ohio Consumers' Counsel.
163. *An Application of the Halifax Regional Water Commission, for approval of revisions to its Cost of Service Manual and Rate Design for Stormwater Service*, Nova Scotia Utility and Review Board, Matter No. M07147. 2016. Concerning stormwater rate design and cost of service, on behalf of the Nova Scotia Consumer Advocate.
164. *In the Matter of An Application by Heritage Gas Limited for Enhancement to Its Existing Residential Retro-Fit Assistance Fund*, Nova Scotia Utility and Review Board, Matter No. M07146. 2016. Concerning costs and benefits associated with utility system expansion, on behalf of the Nova Scotia Consumer Advocate.
165. *In the Matter of the Application of UNS Electric, Inc. for the Establishment of Just and Reasonable Rates and Charges*, Arizona Corporation Commission, Docket No. E-04204A-15-0142. 2016. Concerning rate design and residential demand charges on behalf of Arizona Utility Ratepayer Alliance.
166. *In the Matter of Application of Water Service Corporation of Kentucky for a General Adjustment in Existing Rates*, Kentucky Public Service Commission, Case No. 2015-00382. 2016. Concerning rate design and service area consolidation on behalf of the Kentucky Office of the Attorney General.
167. *Massachusetts Electric Company and Nantucket Electric Company*, Massachusetts Department of Public Utilities, Docket No. DPU 15-155. 2016. Concerning rate design and cost-of-service studies on behalf of the Massachusetts Office of Attorney General.
168. *In the Matter of Abenaki Water Company*, New Hampshire Public Utilities Commission, Docket No. DW 15-199. 2016. Concerning rate design on behalf of the New Hampshire Office of the Consumer Advocate.
169. *In the Matter of an Application by Heritage Gas Limited for Approval of its Customer Retention Program*, Nova Scotia Utility and Review Board Matter No. M07346. 2016. Concerning a regulatory response to competition and potential business failure on behalf of the Nova Scotia Consumer Advocate.
170. *Joint Application of Pennsylvania-American Water Company and the Sewer Authority of the City of Scranton*, Pennsylvania Public Utility Commission Docket No. A-2016-2537209. 2016. Concerning the lawfulness, costs and benefits, and ratemaking treatment of a proposed acquisition of a combined wastewater and storm water utility on behalf of the Pennsylvania Office of Consumer Advocate.
171. *Application of The United Illuminating Company to Amend its Rate Schedules*, Connecticut Public Utility Regulatory Authority Docket No. 16-06-04. 2016. Concerning rate design, cost-of-service study, and other tariff issues on behalf of the Connecticut Office of Consumer Counsel.

172. *Ameren Illinois Company Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Illinois Commerce Commission Docket No. 16-0387. 2016. Concerning rate design and cost-of-service study on behalf of the Illinois Office of the Attorney General.
173. *Unitil Energy Systems, Inc.*, New Hampshire Public Utilities Commission Docket No. 16-384. 2016. Concerning rate design and cost-of-service study on behalf of the New Hampshire Office of Consumer Advocate.
174. *Liberty Utilities (Granite State Electric) Corp.*, New Hampshire Public Utilities Commission Docket No. 16-383. 2016. Concerning rate design and cost-of-service study on behalf of the New Hampshire Office of Consumer Advocate.
175. *Arizona Public Service Co.*, Arizona Corporation Commission Docket No. E-01345A-16-0123. 2017. Concerning rate design and cost-of-service study on behalf of the Arizona Utility Ratepayer Alliance.
176. *Commonwealth Edison Company, Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Illinois Commerce Commission Docket No. 17-0049. 2017. Concerning rate design and cost of service study issues, on behalf of the Illinois Office of Attorney General.
177. *NSTAR Electric Company and Western Massachusetts Electric Company*, Massachusetts Department of Public Utilities Docket No. D.P.U. 17-05. 2017. Concerning rate design and cost of service study issues, on behalf of the Massachusetts Office of Attorney General.
178. *In the Matter of the Tariff Revision Designated as TA857-2 Filed by Alaska Power Company*, Regulatory Commission of Alaska No. U-16-078. 2017. Concerning rate design and cost of service study issues on behalf of the Alaska Office of the Attorney General.
179. *In the Matter of the Application of Minnesota Power for Authority to Increase Rates for Electric Utility Service in Minnesota*, Minnesota Public Utilities Commission Docket No. E015/GR-16-664. 2017. Concerning rate design and cost of service study issues on behalf of AARP.
180. *Pennsylvania Public Utility Commission v. Pennsylvania-American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-2017-2595853. 2017. Concerning rate design, cost of service, and policy issues, on behalf of the Pennsylvania Office of Consumer Advocate.
181. *Aqua Illinois, Inc. Proposed Rate Increases for Water and Sewer Services*, Illinois Commerce Commission, Docket No. 17-0259. 2017. Concerning rate design and single-tariff pricing, on behalf of the Illinois Office of Attorney General.
182. *Petition of Pennsylvania-American Water Company for Approval of Tariff Changes and Accounting and Rate Treatment Related to Replacement of Lead Customer-Owned Service Pipes*, Pennsylvania Public Utility Commission, Docket No. P-2017-2606100. 2017. Concerning public policy and ratemaking issues associated with the replacement of customer-owned lead service lines, on behalf of the Pennsylvania Office of Consumer Advocate.
183. *In the Matter of Application and Notice of Change in Natural Gas Rates of Montana-Dakota Utilities Co.*, North Dakota Public Service Commission, Case No. PU-17-295. 2017. Concerning rate design and cost

of service study issues, on behalf of AARP.

184. *Aqua Illinois, Inc. Petition for the Issuance of a Certificate of Public Convenience and Necessity to Operate a Water and Wastewater System in the Village of Peotone*, Illinois Commerce Commission, Docket No. 17-0314. 2018. Concerning rate consolidation and rate design, on behalf of the Illinois Office of Attorney General.
185. *Application of the Connecticut Light and Power Company d/b/a Eversource Energy to Amend its Rate Schedules*, Connecticut Public Utilities Regulatory Authority, Docket No. 17-10-46. 2018. Concerning rate design issues, on behalf of the Connecticut Office of Consumer Counsel.
186. *Application by Heritage Gas for Approval of a Long-Term Natural Gas Transportation Contract and Cost Recovery Mechanism*, Nova Scotia Utility and Review Board, Matter M08473. 2018. Concerning evaluation of costs, benefits, and risks of a long-term natural gas pipeline contract, on behalf of the Consumer Advocate of Nova Scotia.
187. *Boston Gas Company and Colonial Gas Company*, Massachusetts Department of Public Utilities, D.P.U. 17-170. 2018. Concerning class revenue allocation and rate design, on behalf of the Massachusetts Office of Attorney General.
188. *In the Matter of the Application of Maryland-American Water Company for Authority to Adjust its Existing Schedule of Tariffs and Rates*, Maryland Public Service Commission, Case No. 9487. 2018. Concerning cost-of-service study, on behalf of the Staff of the Maryland Public Service Commission.
189. *Joint Application and Petition of South Carolina Electric & Gas Company and Dominion Energy, Inc. for review and approval of a proposed business combination between SCANA Corporation and Dominion Energy, Inc., as may be required, and for a prudence determination regarding the abandonment of the V.C. Summer Units 2 & 3 Project and associated merger benefits and cost recovery plans*, South Carolina Public Service Commission, Docket No. 2017-370-E. 2018. Concerning regulatory policy, prudence of decision-making, and cost sharing, on behalf of AARP.
190. *Application of Transource Pennsylvania, LLC for approval of the Siting and Construction of the 230 kV Transmission Line Associated with the Independence Energy Connection - East and West Projects in portions of York and Franklin Counties, Pennsylvania*, Pennsylvania Public Utility Commission, Docket Nos. A-2017-2640195, et al. 2018. Concerning regulatory policy and benefit-cost analysis for a proposed high-voltage electric transmission line, on behalf of the Pennsylvania Office of Consumer Advocate.
191. *Pa. Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Pennsylvania Public Utility Commission, Docket Nos. R-2018-3002645, et al. 2018. Concerning cost-of-service study and rate design for a water and wastewater utility, on behalf of the Pennsylvania Office of Consumer Advocate.
192. *West Virginia-American Water Company Rule 42T Tariff Filing to Increase Rates and Charges*, West Virginia Public Service Commission, Case No. 18-0573-W-42T, et al. 2018. Concerning revenue decoupling, on behalf of the Consumer Advocate Division.
193. *Philadelphia Gas Works and Philadelphia Facilities Management Corporation Petition for Approval and Recommendation for Approval of Certain Transactions and Contracts for the Purchase, Storage, Distribution and/or Transmission of Natural and Other Gas, and also Certain Transactions and Contracts Respecting Real Property Owned by the City of Philadelphia and Operated by the Philadelphia*

Gas Works, Philadelphia Gas Commission. 2018. Concerning regulatory policy and cost-benefit analysis for a proposed public-private partnership, on behalf of the Philadelphia Public Advocate.

194. *Pa. Public Utility Commission v. Aqua Pennsylvania, Inc., and Aqua Pennsylvania Wastewater, Inc.*, Pennsylvania Public Utility Commission, Docket Nos. R-2018-3003558, et al. 2018. Concerning rate design, class revenue allocation, and automatic rate adjustment mechanism, on behalf of the Pennsylvania Office of Consumer Advocate.
195. *In the Matter of Commission Initiated Investigation into Rates and Revenue Requirements and Customer Service and Communication Issues Pertaining to Central Maine Power Company*, Maine Public Utilities Commission, Docket No. 2018-00194. 2019. Concerning cost-of-service studies and rate design, on behalf of the Maine Office of Public Advocate.
196. *Northern Illinois Gas Company d/b/a Nicor Gas Company: Proposed general increase in gas rates*, Illinois Commerce Commission, Docket No. 18-1775. 2019. Concerning rate design, cost-of-service study, class revenue allocation, and automatic rate adjustment mechanisms, on behalf of the Illinois Office of the Attorney General.
197. *Massachusetts Electric Co. and Nantucket Electric Co., d/b/a/ National Grid*, Massachusetts Department of Public Utilities, D.P.U. 18-150. 2019. Concerning rate design, cost-of-service study, class revenue allocation, and time-of-use rates, on behalf of the Massachusetts Office of Attorney General.
198. *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 1*, Pennsylvania Public Utility Commission, Docket Nos. M-2018-2640802 and M-2018-2640803. 2019. Concerning billing, metering, rate design, and other compliance issues for a municipal water authority, on behalf of the Pennsylvania Office of Consumer Advocate.
199. *Commonwealth Edison Company Petition for approval of a Revision to Integrated Distribution Company Implementation Plan. Creation of Rate Residential Time of Use Pricing Pilot (“Rate RTOUPP”)*. Illinois Commerce Commission, Docket Nos. 18-1725/18-1824 (Cons.). Concerning time-of-use rates, on behalf of the Illinois Office of Attorney General.
200. *Washington Utilities and Transportation Commission v. Northwest Natural Gas Co.*, Washington Utilities and Transportation Commission, Docket UG-181053. 2019. Concerning a proposed revenue decoupling automatic rate adjustment mechanism, on behalf of the Washington Office of Attorney General, Public Counsel Unit.
201. *In the Matter of the Application of Washington Gas Light Company for Authority to Increase Existing Rates and Charges and to Revise its Terms and Conditions for Gas Service*, Maryland Public Service Commission, Case No. 9605. 2019. Concerning cost-of-service study on behalf of the Staff of the Maryland Public Service Commission.
202. *Public Service Company of New Hampshire, d/b/a Eversource Energy*, New Hampshire Public Utilities Commission, Docket No. DE 19-057. 2019. Concerning class revenue allocation, rate design, revenue decoupling, other automatic rate adjustment mechanisms, and miscellaneous tariff issues on behalf of AARP.
203. *In the Matter of the Application of Southwest Gas Corporation for the Establishment of Just and Reasonable Rates and Charges Designed to Realize a Reasonable Rate of Return on the Fair Value of the*

Properties of Southwest Gas Corporation Devoted to its Arizona Operations, Arizona Corporation Commission, Docket No. G-01551A-19-0055. 2020. Concerning certain relationships with affiliates, premature pipe replacement, revenue decoupling, automatic rate adjustment mechanisms, and rate design on behalf of Arizona Grain, Inc.

204. *Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of an Increase in Base Distribution Rates*, Massachusetts Department of Public Utilities, Docket No. D.P.U. 19-120. 2020. Concerning cost-of-service study, class revenue allocation, surcharges, and miscellaneous tariff provisions, on behalf of the Massachusetts Office of Attorney General.

205. *In the Matter of an Application of the Halifax Regional Water Commission for Approval of a Schedule of Rates and Charges*, Nova Scotia Utility and Review Board, Matter M09589. 2020. Concerning regulatory policy, cost-of-service study, and rate design, on behalf of the Nova Scotia Consumer Advocate.

206. *Pa. Public Utility Commission v. UGI Utilities Inc. - Gas Division*, Pennsylvania Public Utility Commission, Docket No. R-2019-3015162. 2020. Concerning regulatory policy, on behalf of the Pennsylvania Office of Consumer Advocate.

207. *Pa. Public Utility Commission v. Philadelphia Gas Works*, Pennsylvania Public Utility Commission, Docket No. R-2020-3017206. 2020. Concerning regulatory policy, on behalf of the Pennsylvania Office of Consumer Advocate.

208. *Pa. Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Pennsylvania Public Utility Commission, Docket Nos. R-2020-3017951, *et al.* 2020. Concerning regulatory policy, cost-of-service study, and rate design, on behalf of the Pennsylvania Office of Consumer Advocate.

209. *Pa. Public Utility Commission v. Columbia Gas of Pa.*, Pennsylvania Public Utility Commission, Docket No. R-2020-3018835. 2020. Concerning regulatory policy, on behalf of the Pennsylvania Office of Consumer Advocate.

Pandemic-related data for counties served by PAWC

(Note: PAWC does not serve entire population of all counties listed)

County	Population (2018)	COVID-19 Cases as of 9/1/2020	Cases per 100,000	Unemployment Rate as of February 2020	Unemployment Rate as of April 2020	Unemployment Rate as of July 2020	% Change from Feb.
Adams	102,023	648	635	3.5	14.9	10.1	189%
Allegheny	1,225,561	10,376	847	4.3	16.2	14.3	233%
Armstrong	66,331	320	482	5.8	17.8	14.4	148%
Beaver	166,896	1,618	969	5.2	18.7	15.8	204%
Berks	416,642	6,095	1,463	4.6	17.2	12.9	180%
Bucks	626,370	7,824	1,249	4.1	15.4	12.9	215%
Butler	186,566	789	423	4.3	15.9	11.7	172%
Centre	161,443	491	304	3.6	10.4	8.8	144%
Chester	517,156	5,671	1,097	3.3	11.9	10.1	206%
Clarion	38,827	98	252	5.5	17.3	11.6	111%
Clearfield	80,216	228	284	5.8	17.2	13.2	128%
Clinton	39,074	137	351	5.9	16.1	12.0	103%
Columbia	66,220	675	1,019	4.8	15.4	11.2	133%
Cumberland	247,433	1,546	625	3.6	12.3	10.0	178%
Dauphin	274,515	3,355	1,222	4.2	15.0	13.1	212%
Fayette	132,289	694	525	6.6	20.5	17.0	158%
Indiana	85,755	430	501	5.5	15.9	13.4	144%
Jefferson	44,084	97	220	5.2	16.7	13.2	154%
Lackawanna	211,454	2,093	990	5.2	17.7	14.5	179%
Lancaster	538,347	6,789	1,261	3.7	15.2	11.1	200%
Lawrence	87,382	464	531	6.3	18.6	15.2	141%
Lebanon	138,674	1,736	1,252	4.2	14.1	12.0	186%
Luzerne	317,884	3,788	1,192	6.0	19.0	16.1	168%
McKean	41,806	40	96	6.6	18.5	14.3	117%
Monroe	167,586	1,716	1,024	5.8	20.5	17.4	200%
Montgomery	821,301	11,093	1,351	3.7	14.0	11.9	222%
Northampton	301,778	4,120	1,365	4.6	16.3	13.4	191%
Northumberland	92,325	692	750	5.7	17.1	13.5	137%
Pike	55,498	543	978	6.0	19.4	16.1	168%
Schuylkill	143,555	992	691	5.4	16.6	13.5	150%
Susquehanna	41,340	269	651	4.8	13.1	10.9	127%
Union	45,114	386	856	4.0	13.9	10.2	155%
Warren	40,035	28	70	5.3	13.2	12.7	140%
Washington	207,547	1,066	514	4.9	17.4	14.3	192%
Wayne	51,536	178	345	5.4	18.1	14.1	161%
York	444,014	3,442	775	4.1	15.3	11.4	178%
Total	8,224,577	80,527	979	4.4	15.7	12.9	191%

Sources:

Population: US Census Bureau, American Community Survey, Table B01003 Total Population (5-year estimate, 2014-2018)
COVID-19 cases: <https://www.health.pa.gov/topics/disease/coronavirus/Pages/Cases.aspx>
Unemployment: Pa. Dept. of Labor & Industry, seasonally adjusted unemployment rate for July (released 9/1/2020)
<https://www.workstats.dli.pa.gov/MediaCenter/MonthlyNews/Pages/default.aspx>



Report on the Economic Well-Being of U.S. Households in 2019, Featuring Supplemental Data from April 2020

May 2020

Financial Repercussions from COVID-19

For many families, financial circumstances in 2020 look very different than they did in late 2019 when the SHED was fielded. In order to gain further information about these changing circumstances, the Federal Reserve Board fielded a supplemental survey in April 2020. From the start of March through early April 2020, 19 percent of adults reported losing a job, being furloughed, or having their hours reduced. Among those experiencing these employment disruptions, over one-third expected to have difficulty with their bills in April. Yet, for those not experiencing an employment disruption, financial outcomes at the time of the supplemental survey were largely similar to those observed in the fourth quarter of 2019.

Employment and Work from Home

Thirteen percent of adults, representing 20 percent of people who had been working in February, reported that they lost a job or were furloughed in March or the beginning of April 2020 ([figure 39](#)).⁵⁰ These job losses were most severe among workers with lower incomes. Thirty-nine percent of people

working in February with a household income below \$40,000 reported a job loss in March. Another 6 percent of all adults had their hours reduced or took unpaid leave. Taken together, 19 percent of all adults reported either losing a job or experiencing a reduction in work hours in March.

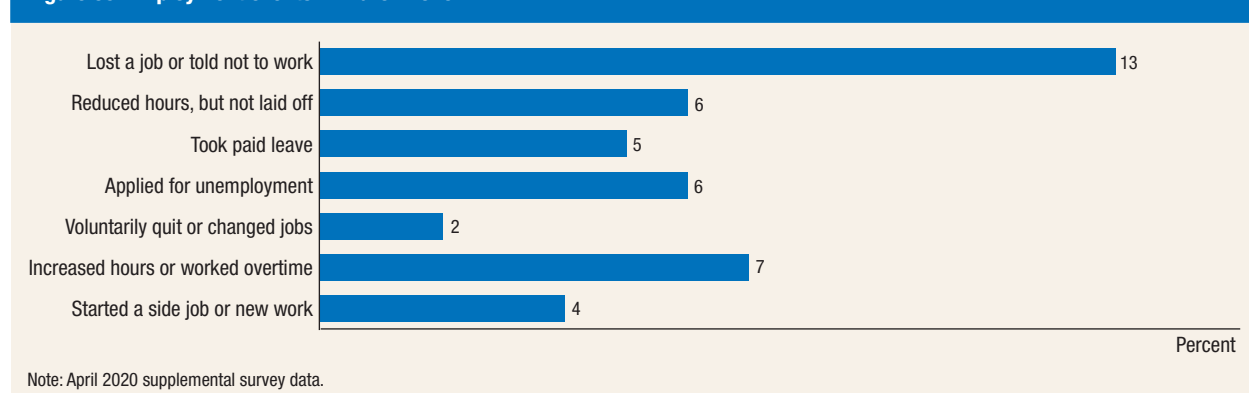
Despite these widespread employment losses, some people took on new or additional employment in March. Seven percent of adults reported that they increased their hours worked or worked overtime. Four percent of adults, including 8 percent of those who experienced a job loss, took on a side job to supplement their income. Some people who lost jobs may also have started other full-time employment or already had second jobs.

Many people who lost a job remained connected to their employer and expected to return to the same job eventually. Nine in 10 people who lost a job said that their employer indicated that they would return to their job at some point. In general, however, people were not told specifically when to expect to return to work. Seventy-seven percent said that their

⁵⁰ Respondents were asked about employment events between March 1 and when they took the survey. The survey was in the field from April 3 through April 6. Subsequent references in this section to events in March include the beginning of April

prior to the respondent taking the survey; 1,030 adults responded to the supplemental survey, and results were weighted to be nationally representative. Additional details can be found in the “[Description of the Survey](#)” section of this report.

Figure 39. Employment events in March 2020



employer told them to expect to return, but did not give them a return date. A smaller 14 percent were given a specific return date or had already returned to work. It is difficult to predict, however, how long layoffs will ultimately last.

Many of those who were still working worked from home. More than half of workers (53 percent) did at least some work from home in the last week of March, and 41 percent did all their work from home. For comparison, in October 2019, 7 percent of people working for someone else usually worked from home (see the “[Employment](#)” section of this report).

Workers with higher levels of education, particularly bachelor’s degrees, were more likely to work from home. Sixty-three percent of workers with at least a bachelor’s degree worked entirely from home. Among workers with a high school degree or less, 20 percent worked entirely from home, as did 27 percent of workers who have completed some college or an associate degree ([figure 40](#)).

Some people also said that childcare, family obligations, or health concerns contributed to them working less in March. Including those taking paid leave or who had their hours reduced but who were not laid off, 9 percent of adults worked fewer hours in March. Among this group, 21 percent said they worked fewer hours because of family responsibilities or childcare. Seventeen percent said that illness or health limitations had contributed to their reduction in hours. Nevertheless, 47 percent of those

working fewer hours said it was due to fewer hours offered by their employer.

Effects on Family Finances

For the majority of adults, income, ability to pay current bills, and their approach to covering a hypothetical \$400 unexpected expense appear to be generally stable during the initial period of the COVID-19 pandemic. Yet among those who experienced employment losses, financial well-being is substantially lower.

Consistent with the employment declines in March, many people experienced declines in their incomes. Overall, 23 percent of adults said their income in March was lower than in February, while 5 percent said their income increased and the rest indicated it was about the same ([figure 41](#)). Among those who lost a job or had their hours reduced, 70 percent reported that their income declined. Most people who did not report a job loss or reduced hours said that their income was about the same, although 12 percent said their month-to-month income declined between February and March.

A loss of income can affect people’s ability to pay regular monthly bills. Eighty-one percent of adults said they could pay all the current month’s bills in full in April, which was essentially unchanged from the fourth quarter of 2019 ([table 32](#)). Yet, the survey found far greater rates of difficulty among those experiencing employment disruptions. Sixty-

Figure 40. Amount of work performed remotely in week ending April 4, 2020 (by education)

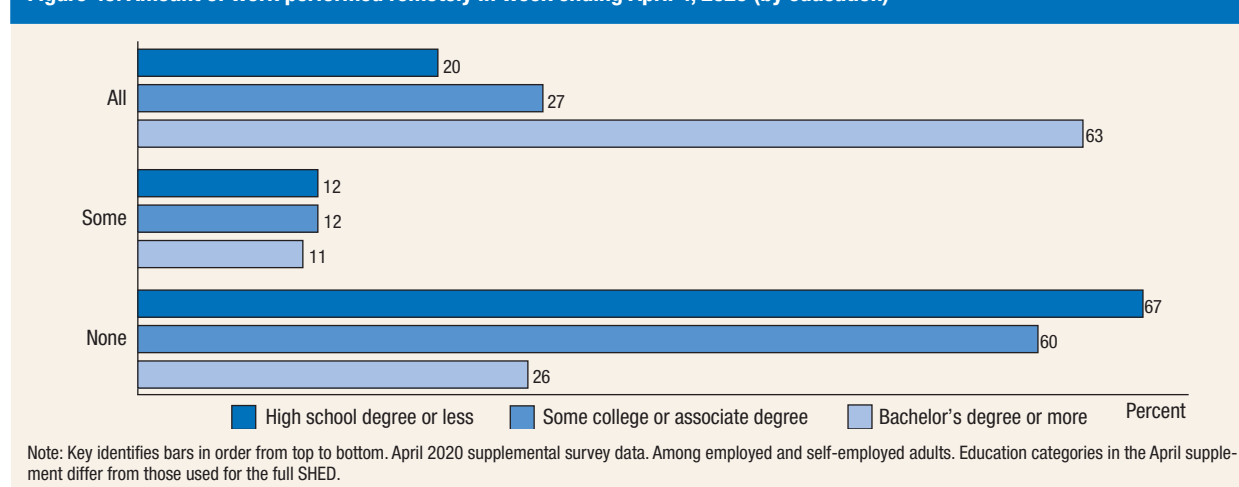
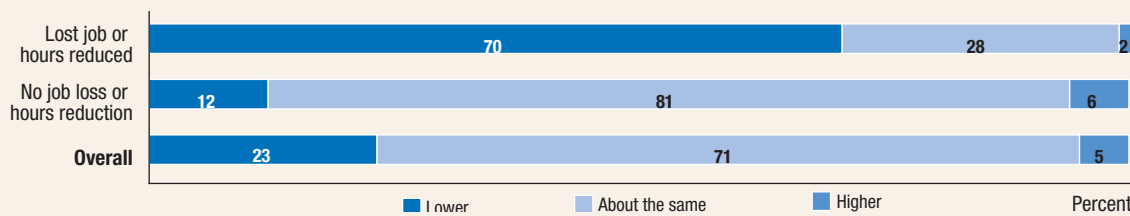


Figure 41. Income in March 2020 relative to February (by employment disruptions since March 1)

Note: Key identifies bars in order from left to right. April 2020 supplemental survey data.

Table 32. Financial resiliency measures (by year and employment disruptions since March 1)

Percent

Year and employment disruption	Able to pay all current month's bills in full	Would pay \$400 expense with cash or equivalent
2019 SHED		
Overall	84	63
2020 April supplement		
Lost job or hours reduced	64	46
No job loss or hours reduction	85	68
Overall	81	64

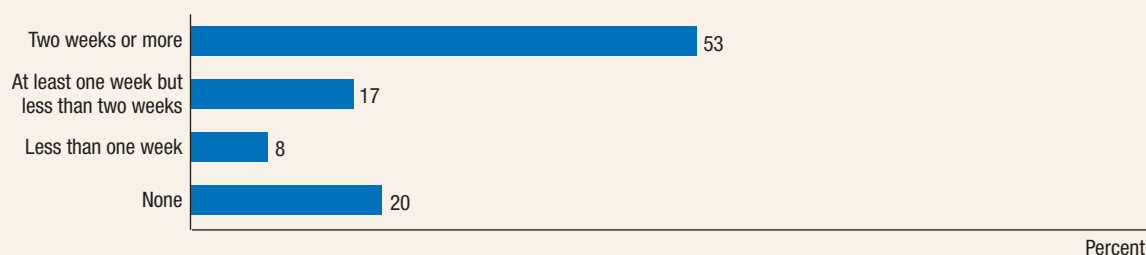
Note: Data from both the 2019 SHED and April 2020 supplemental survey.

four percent of adults who reported a job loss or reduction in hours expected to be able to pay all their bills in full in April, compared to 85 percent of those without an employment disruption.⁵¹

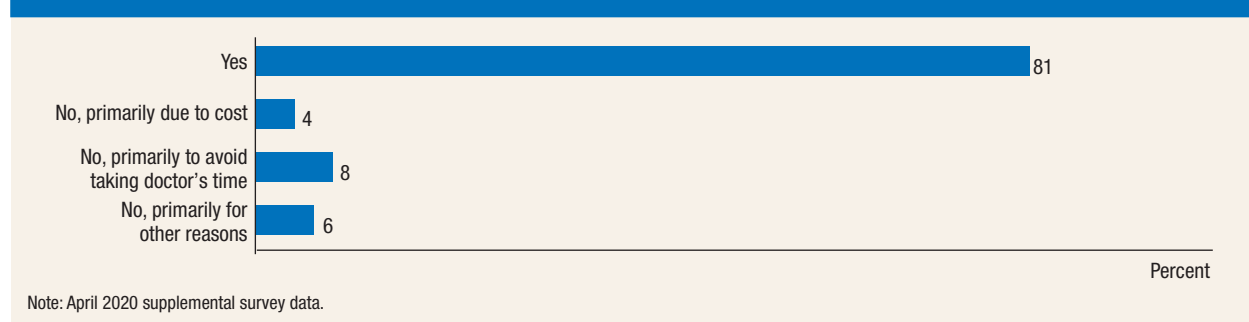
⁵¹ The April supplement was conducted after the passage of the Families First Coronavirus Response Act and the CARES Act, which provided financial relief to many families and expanded the availability of paid leave for some workers who contract COVID-19. However, the survey was conducted before most benefits were received, so it is unclear how many respondents considered these new policies when responding to the survey.

Similarly, for adults overall in April, the share who reported they would pay an unexpected \$400 emergency expense entirely using cash, savings, or a credit card paid off at the next statement was essentially unchanged from the fall of 2019. Yet those who experienced the loss of a job or work hours were less likely to report they would pay an unexpected \$400 expense in these ways.

In addition to the economic effects from the broader employment disruptions related to COVID-19, individuals may experience additional financial challenges if they, or someone close to them, gets sick. Workers who lack paid leave are more likely to face financial hardships or deplete financial resources if they become sick with coronavirus symptoms. Fifty-three percent of employed adults, including those who are self-employed, indicated that could take two or more weeks of paid leave if they got sick with coronavirus symptoms (figure 42). Nonetheless, one-fifth of employed adults reported that they could not take any time off without a reduction in income under these circumstances. On average, those with more education had more leave available. Sixty-four percent of adults with a bachelor's degree or more said that they had at least two weeks of leave, while 42 percent of adults with a high school

Figure 42. Amount of leave available to use if sick with coronavirus symptoms without a reduction in pay

Note: April 2020 supplemental survey data. Among employed and self-employed adults.

Figure 43. Would you try to contact a doctor if sick with symptoms of the coronavirus?

degree or less said that they could take off at least two weeks without a reduction in income.

Financial circumstances can also affect decisions to seek medical care. Most adults (81 percent) said they would try to contact a doctor if they were to get sick with coronavirus symptoms, although a small share (4 percent) indicated that concerns about cost would deter them (figure 43). Those who experienced a job loss or reduced hours were more likely not to contact a doctor because of costs (8 percent), relative to those who had not (3 percent). However, this is well below the share who reported in the fall that they

skipped any medical care due to an inability to pay (see the “[Dealing with Unexpected Expenses](#)” section of this report). This lower rate of expecting to skip medical care for COVID-19 likely reflects its serious nature.

Results from the supplemental survey reflect financial conditions at the beginning of April 2020 and indicate the nature of families’ experiences of financial conditions at that time. However, the financial repercussions from COVID-19 continue to evolve, and the Federal Reserve Board will continue to monitor the financial conditions of households.

Experienced loss of employment income since mid-March, and expected income loss in the next four weeks, Pennsylvania households by selected characteristics, as of the week ending July 21, 2020

	Lost income since mid-March	Expect to lose income in next 4 weeks
Hispanic origin and Race		
Hispanic or Latino (may be of any race)	78.5%	49.5%
White alone, not Hispanic	43.4%	26.0%
Black alone, not Hispanic	63.9%	34.2%
Asian alone, not Hispanic	30.9%	24.6%
Education		
Less than high school	48.8%	30.9%
High school or GED	47.5%	31.3%
Some college/associate's degree	58.2%	36.7%
Bachelor's degree or higher	39.9%	19.7%
Household income		
Less than \$25,000	45.0%	36.8%
\$25,000 - \$34,999	54.9%	34.6%
\$35,000 - \$49,999	54.0%	27.1%
\$50,000 - \$74,999	58.2%	29.1%
\$75,000 - \$99,999	50.0%	35.0%
\$100,000 - \$149,999	37.6%	16.4%
\$150,000 - \$199,999	35.4%	24.8%
\$200,000 and above	35.1%	21.1%
All households in Pennsylvania	48.1%	29.2%

Source: U.S. Census Bureau Household Pulse Survey, Week 12 (week ending July 21, 2020).
Employment Table 1. Experienced and Expected Loss of Employment Income, by Select
Characteristics: Pennsylvania

How Pennsylvania households who lost employment income since mid-March paid their bills in the past 7 days, as of the week ending July 21, 2020

Regular income sources like those used before the pandemic	60.4%
Credit cards or loans	24.9%
Money from savings or selling assets	34.7%
Borrowing from friends or family	14.9%
Unemployment insurance (UI) benefit payments	25.7%
Stimulus (economic impact) payment	26.9%
Money saved from deferred or forgiven payments (to meet spending needs)	5.6%
Did not report	0.9%

Source: U.S. Census Bureau Household Pulse Survey, Week 12 (week ending July 21, 2020).
Employment Table 1. Experienced and Expected Loss of Employment Income, by Select
Characteristics: Pennsylvania

Impact of COVID-19 on Consumer Energy Use & Outlook

Results of EPRI National Survey

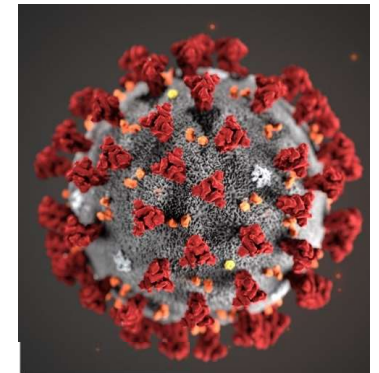
Omar Siddiqui
Min Long

April 29, 2020



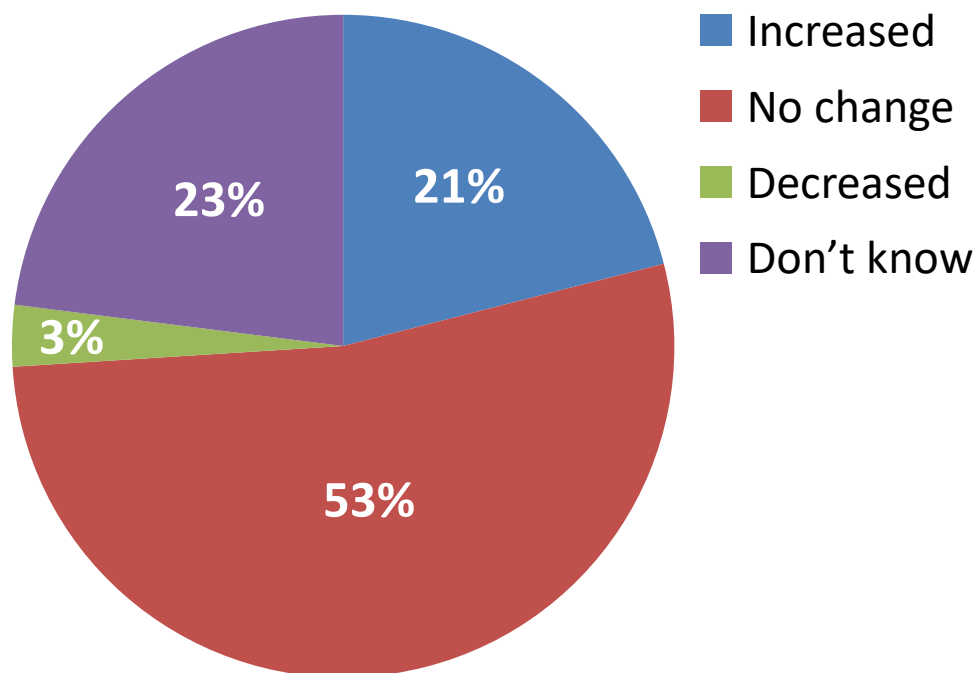
Introduction

- National EPRI survey on COVID-19 impact on consumer energy use and outlook
- Online panel through YouGov
- Nationally representative sample
 - 2,000 respondents
 - Geographic (census regions and divisions)
 - Demographic (household size, age, education, rent vs. own home, income, etc.)
 - Margin of error +/- 2.3%
- Administered week of April 13

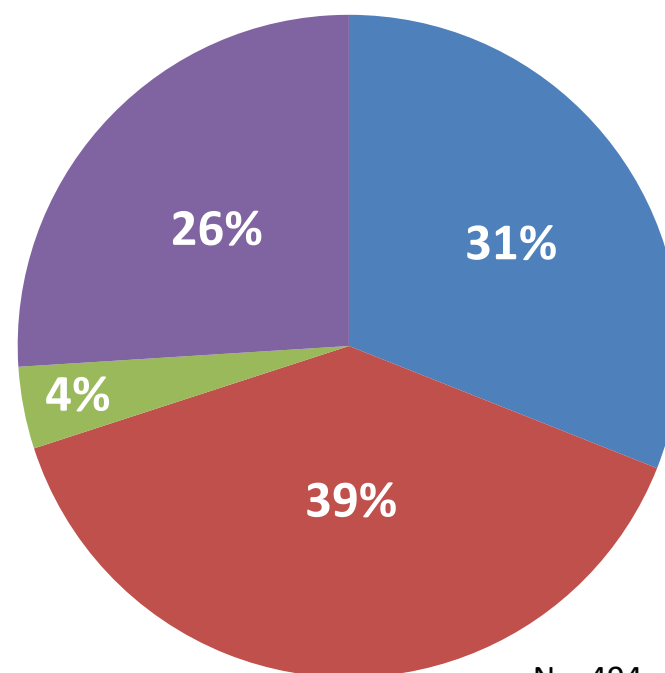


How has the current situation affected your energy bills?

Overall Results



Those with Kids Schooling at Home

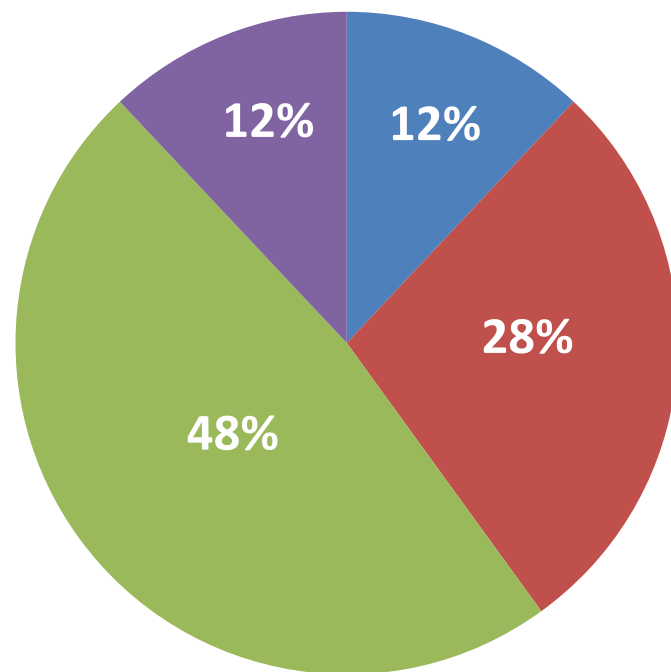


N = 494

Statistical margin of error +/- 2.3%

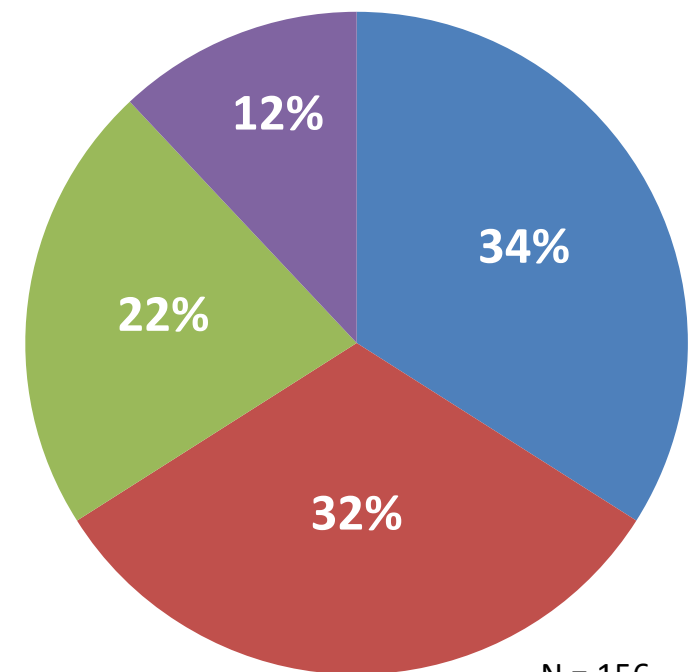
How do you feel about your energy bills as a result of the current situation?

Overall Results



- Very concerned
- Somewhat concerned
- Not concerned
- Don't know/
don't pay attention

Those Who Have Lost Their Job

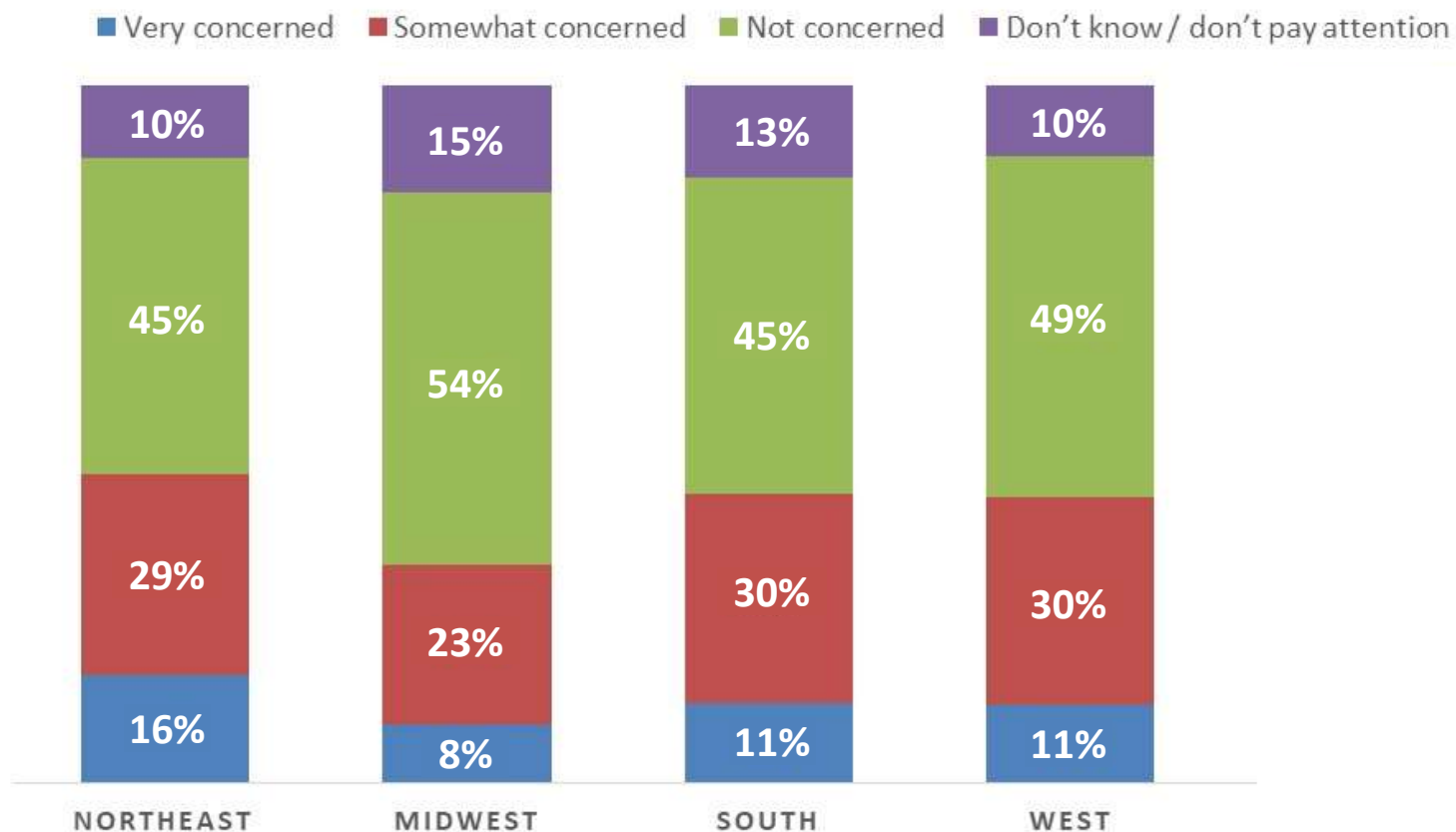


N = 156

Statistical margin of error +/- 2.3%

How do you feel about your energy bills as a result of the current situation?

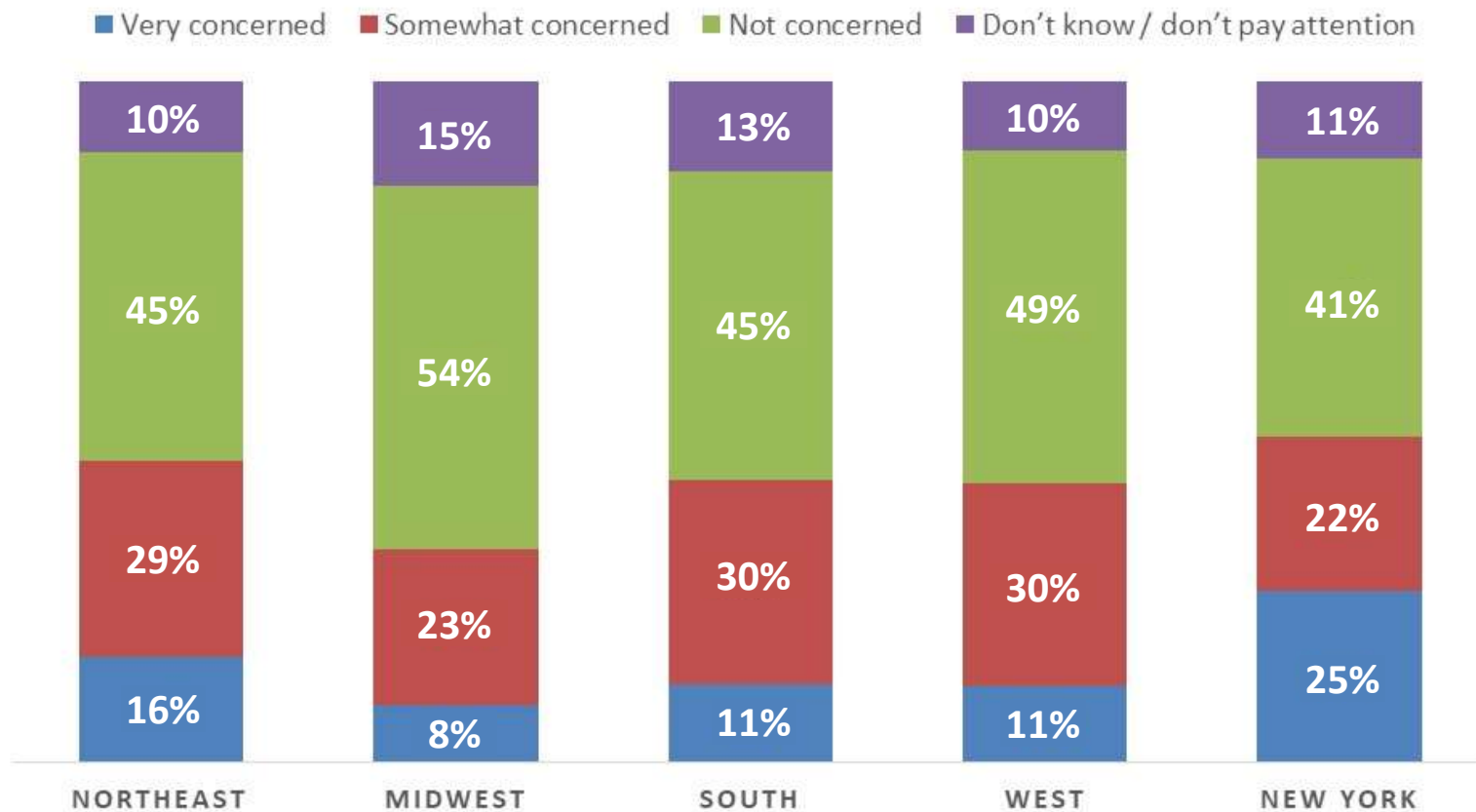
HIGHER CONCERN IN NORTHEAST



Statistical margin
of error +/- 2.3%

How do you feel about your energy bills as a result of the current situation?

HIGHER CONCERN IN NORTHEAST, ESPECIALLY NEW YORK

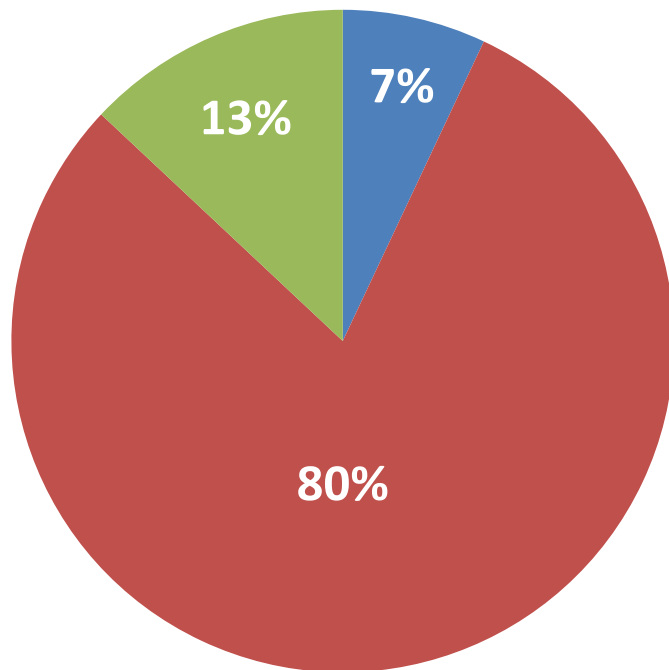


Statistical margin
of error +/- 2.3%

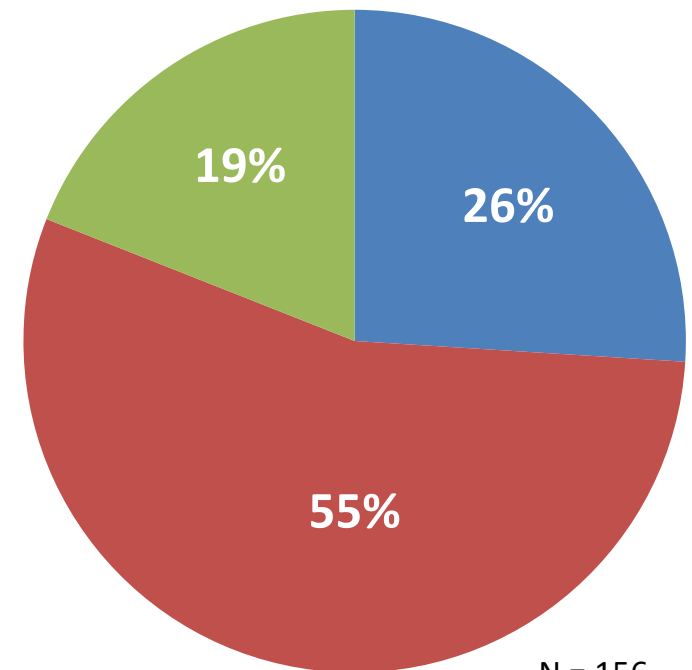
Have you skipped, or do you intend to skip, an electric or gas bill payment during this crisis?

Overall Results

■ Yes
■ No
■ I don't know



Those Who Have Lost Their Job

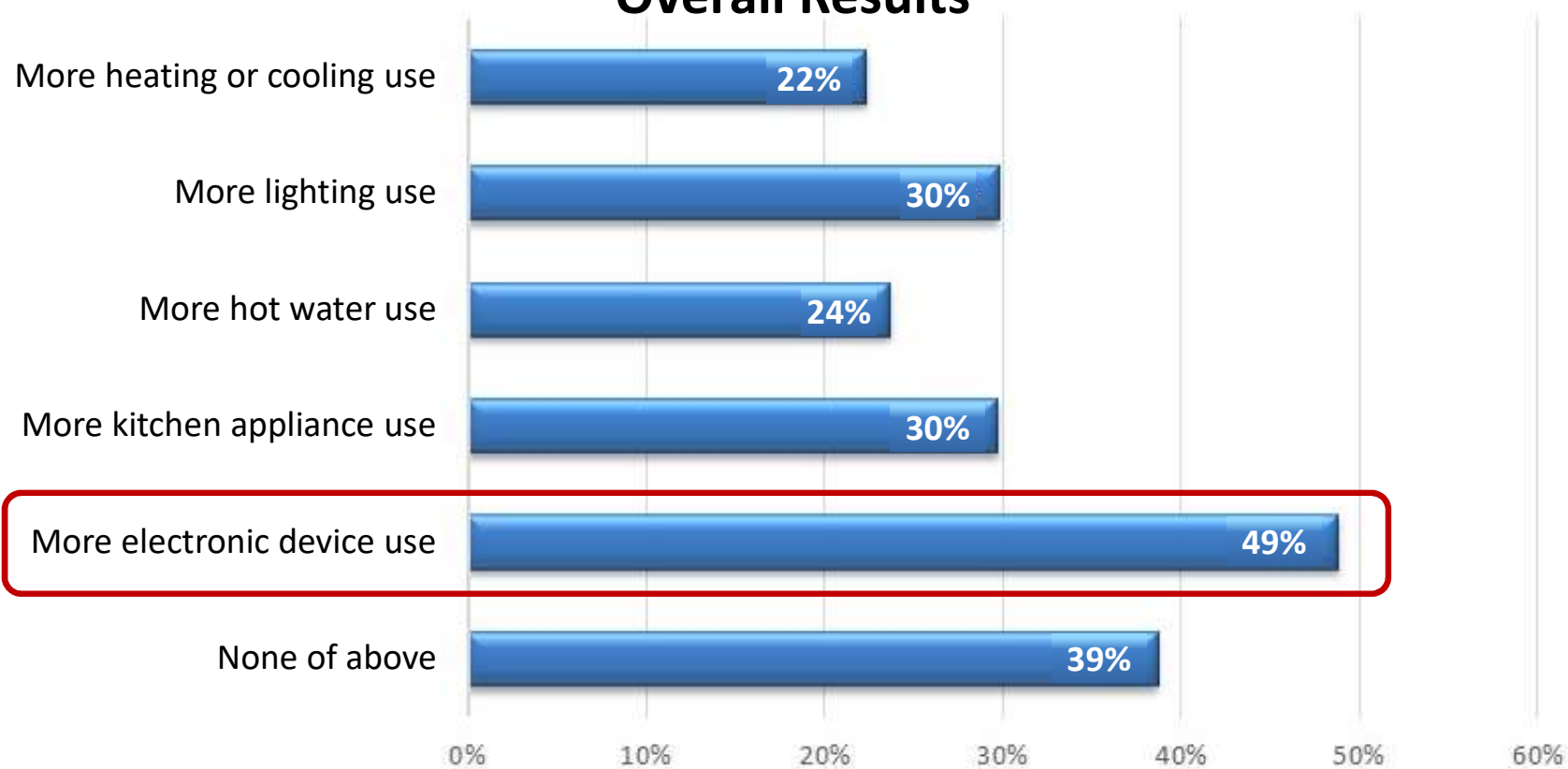


N = 156

Statistical margin of error +/- 2.3%

What changes have you noticed in your home energy use as a result of COVID-19?

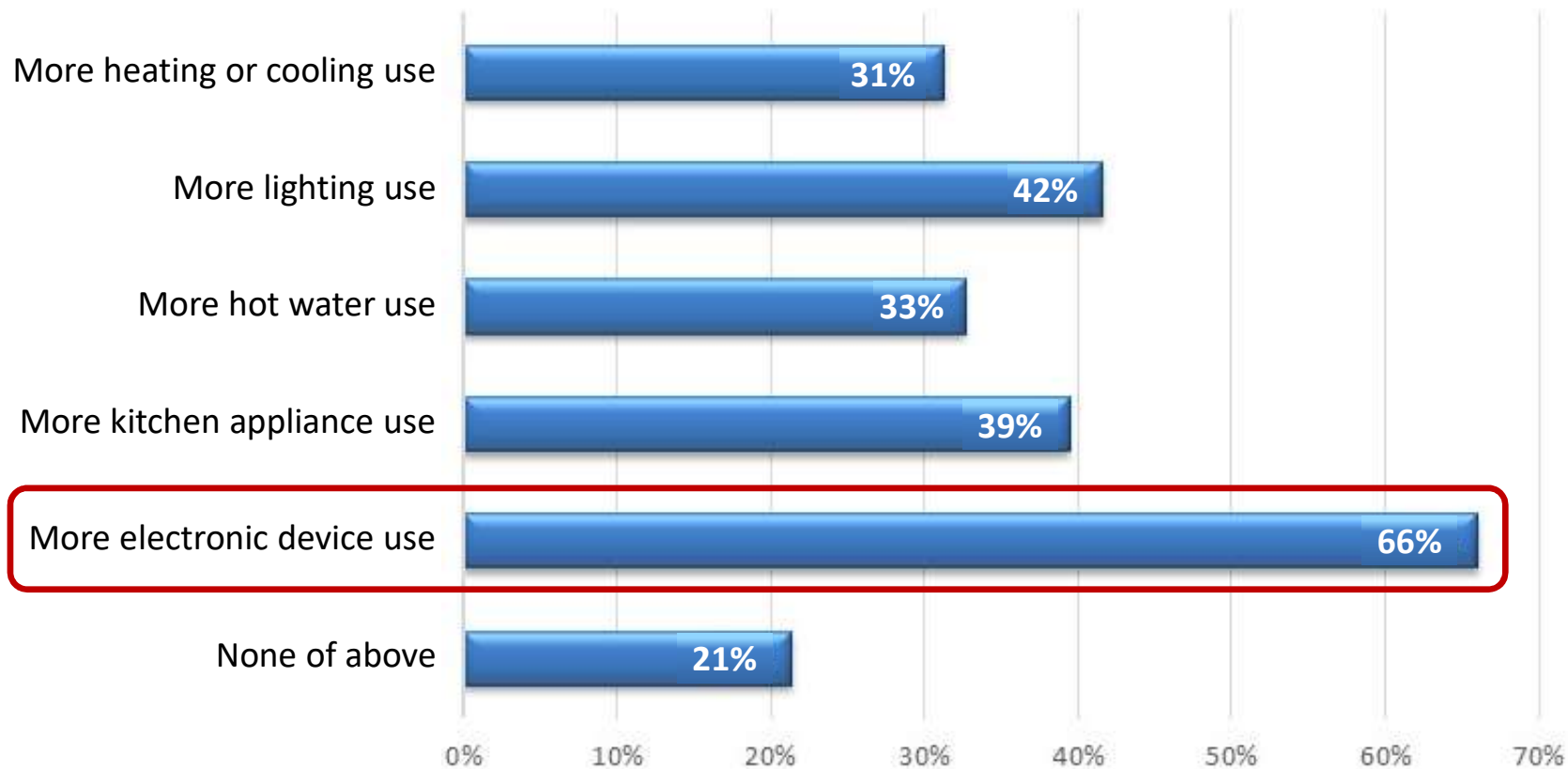
Overall Results



Statistical margin of error +/- 2.3%

What changes have you noticed in your home energy use as a result of COVID-19?

Those with Kids Schooling at Home

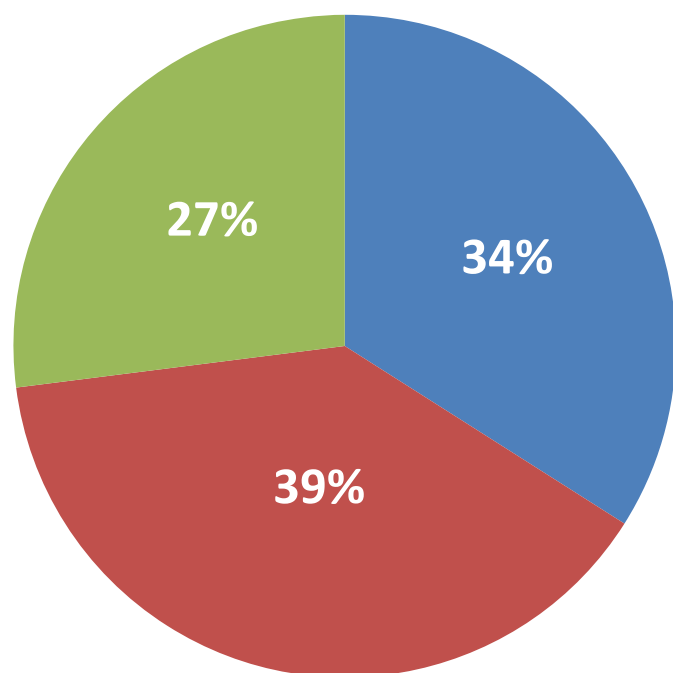


N = 494

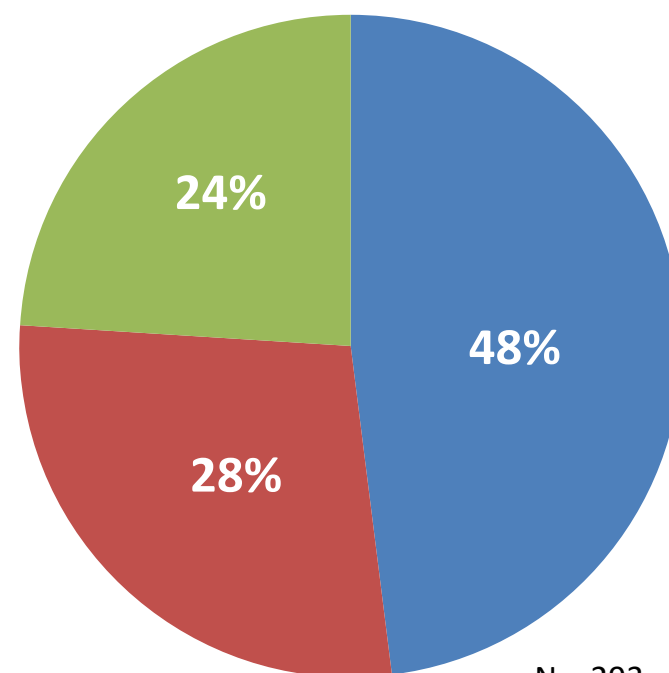
Are savings from other expenses offsetting any increases in your energy bills?

Overall Results

■ Yes
■ No
■ I'm not sure



Those Who Now Work from Home

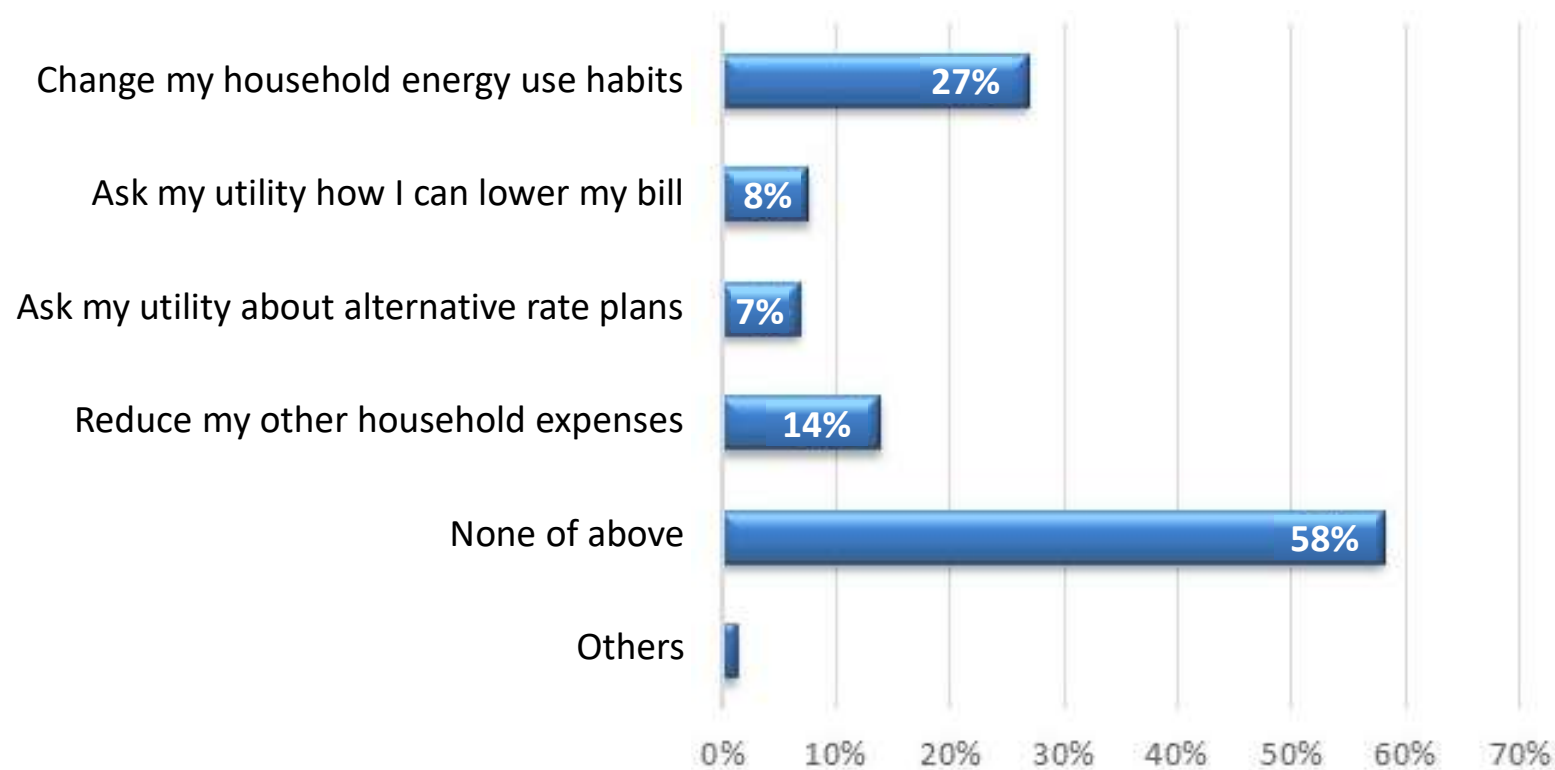


N = 293

Statistical margin of error +/- 2.3%

Does the current crisis make you more likely to take the following actions related to your energy use?

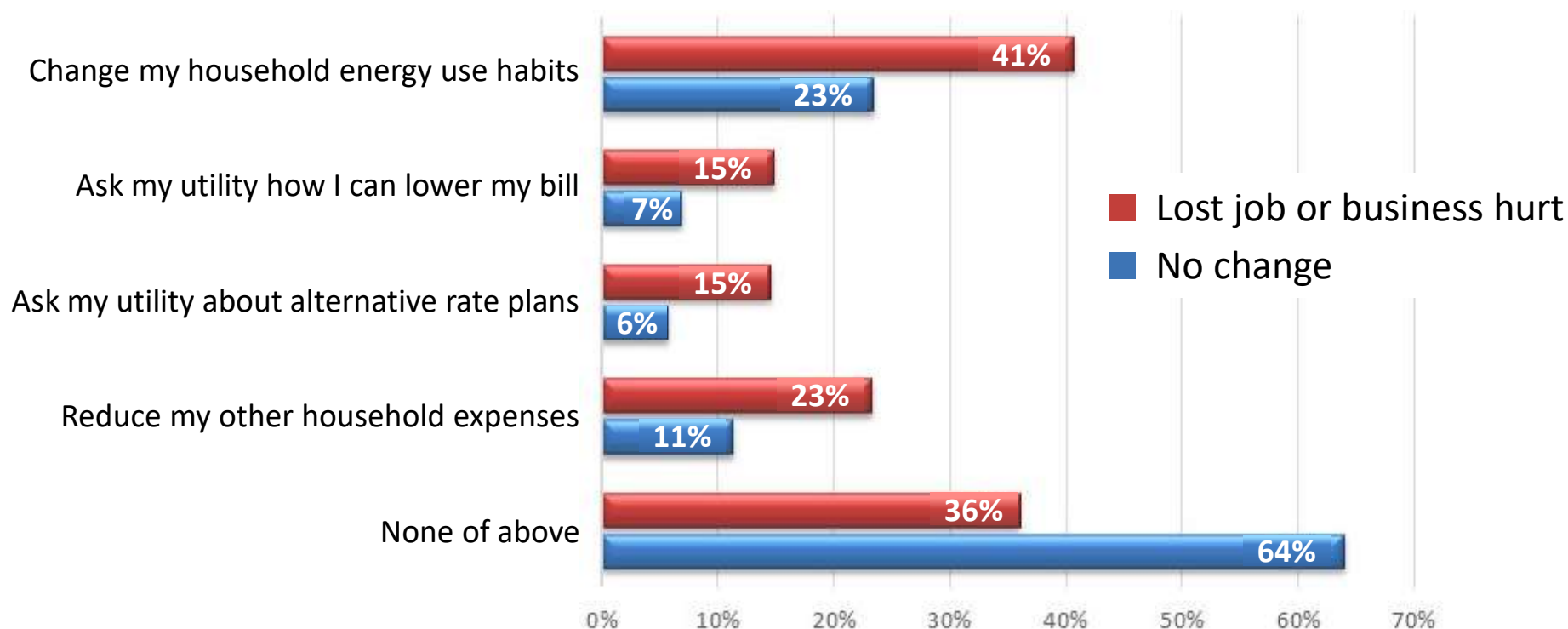
Overall Results



Statistical margin of error +/- 2.3%

Does the current crisis make you more likely to take the following actions related to your energy use?

Results Segmented by Impact of COVID-19 on Employment Status

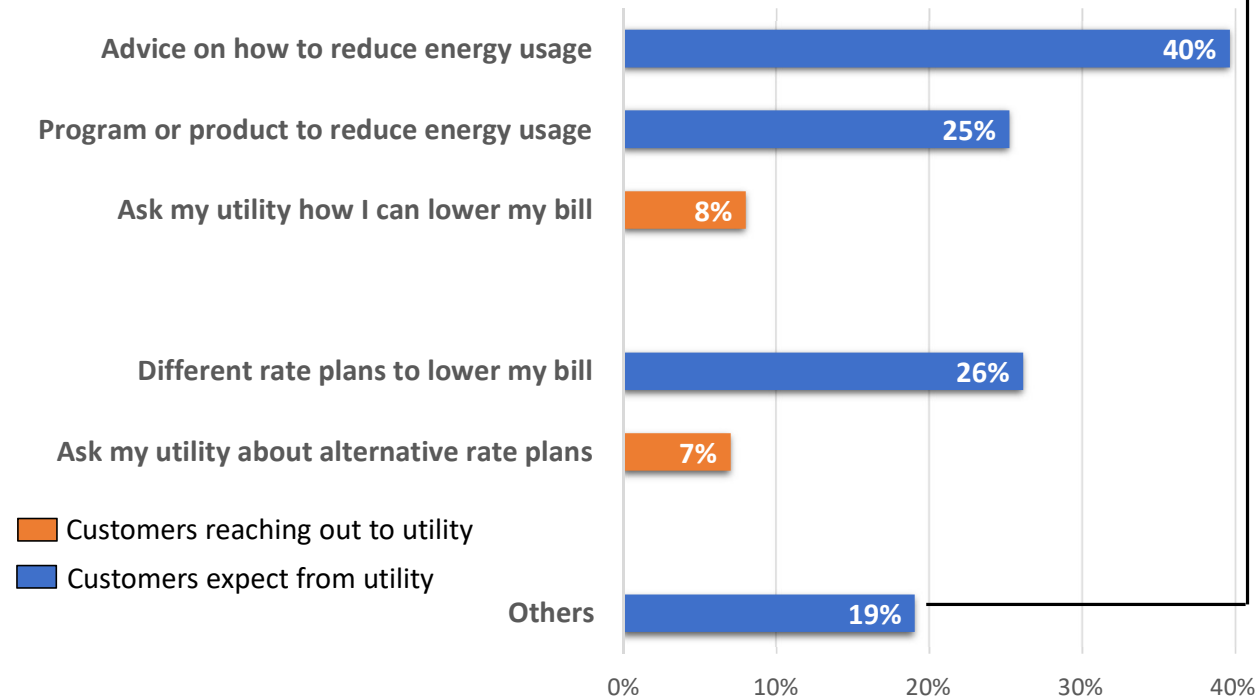


Statistical margin of error +/- 2.3%

What actions do you expect your electric utility to take?

Few customers are proactively asking their utility for help to reduce their energy use and bills; however

More customers still expect their utility to help by providing advice, programs, or rate plans to reduce their energy bills



"Other" Explained

No Need

None

“ Nothing now... might change if my job status changes ”
 Utilities included in my rent

Actions Expected

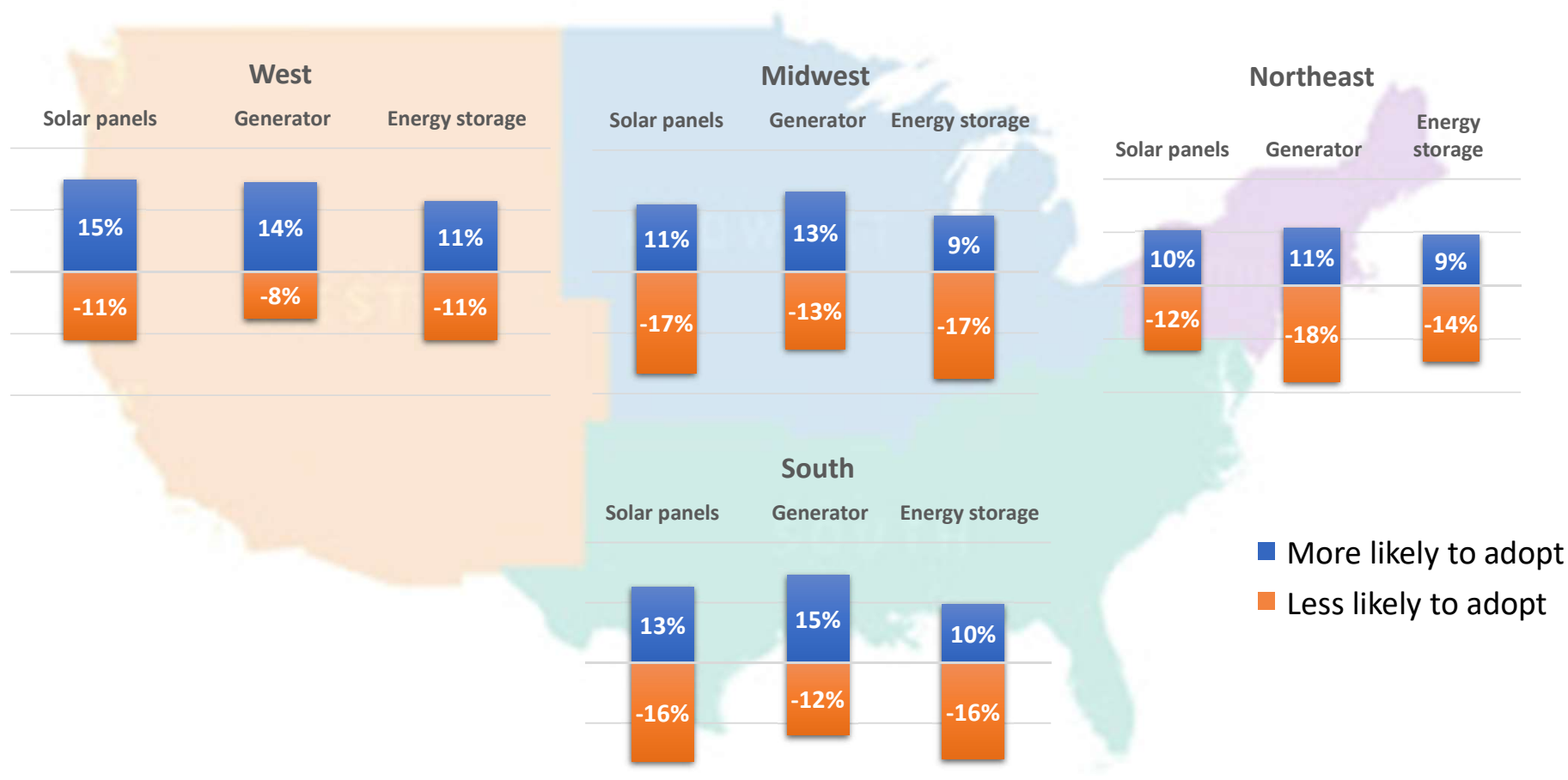
Keep the electricity flowing
 Reduce rates for those in need
 “ Waive late fees ”
 Give me extra time to pay bill
 Provide a credit on my bill

Negatives

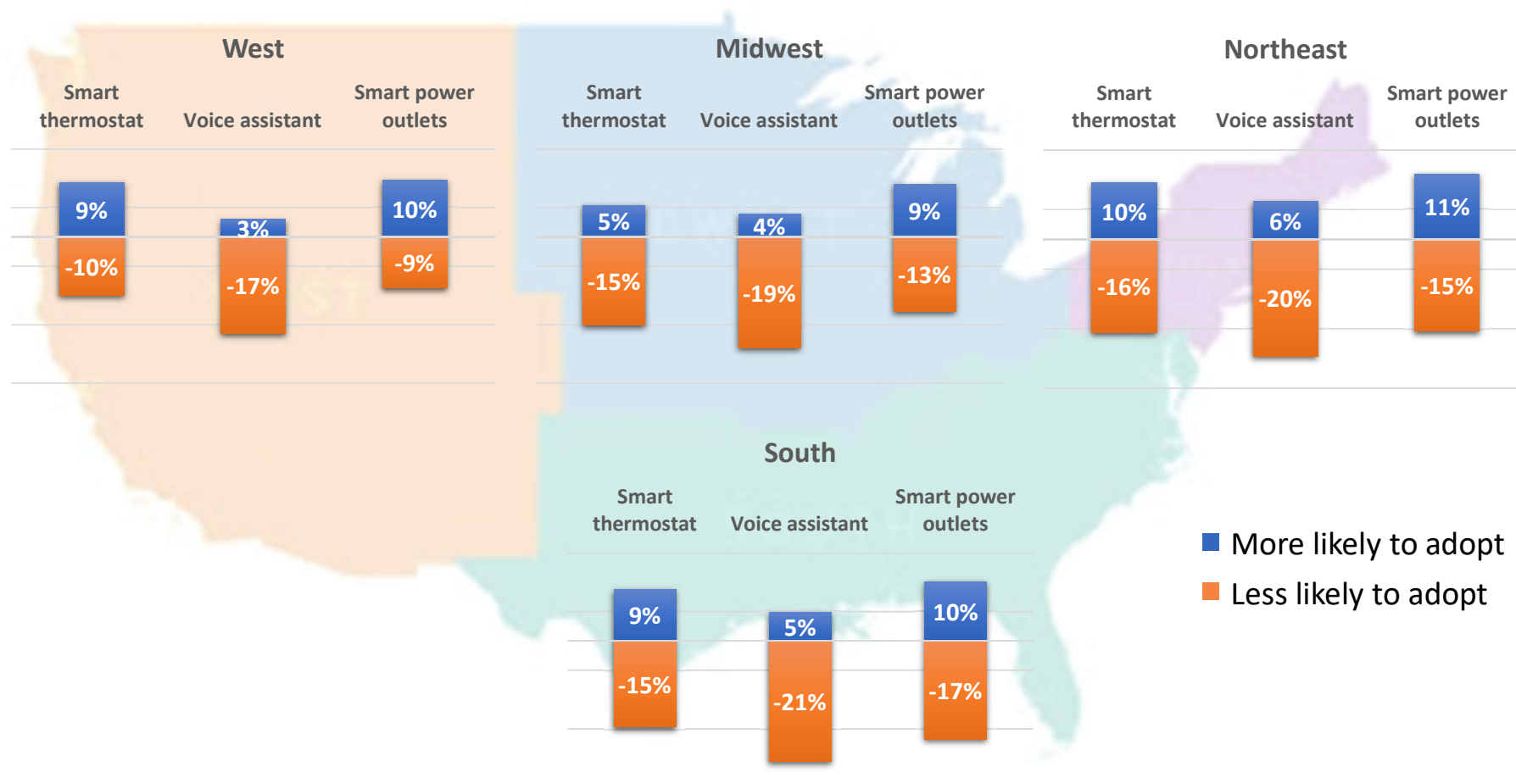
Expect utility to raise prices
 “ Utility won't do anything ”
 Utility hasn't contacted me

***“Does the current crisis make you more likely or less likely
to purchase any of the following within this year?”***
Results by U.S. census regions

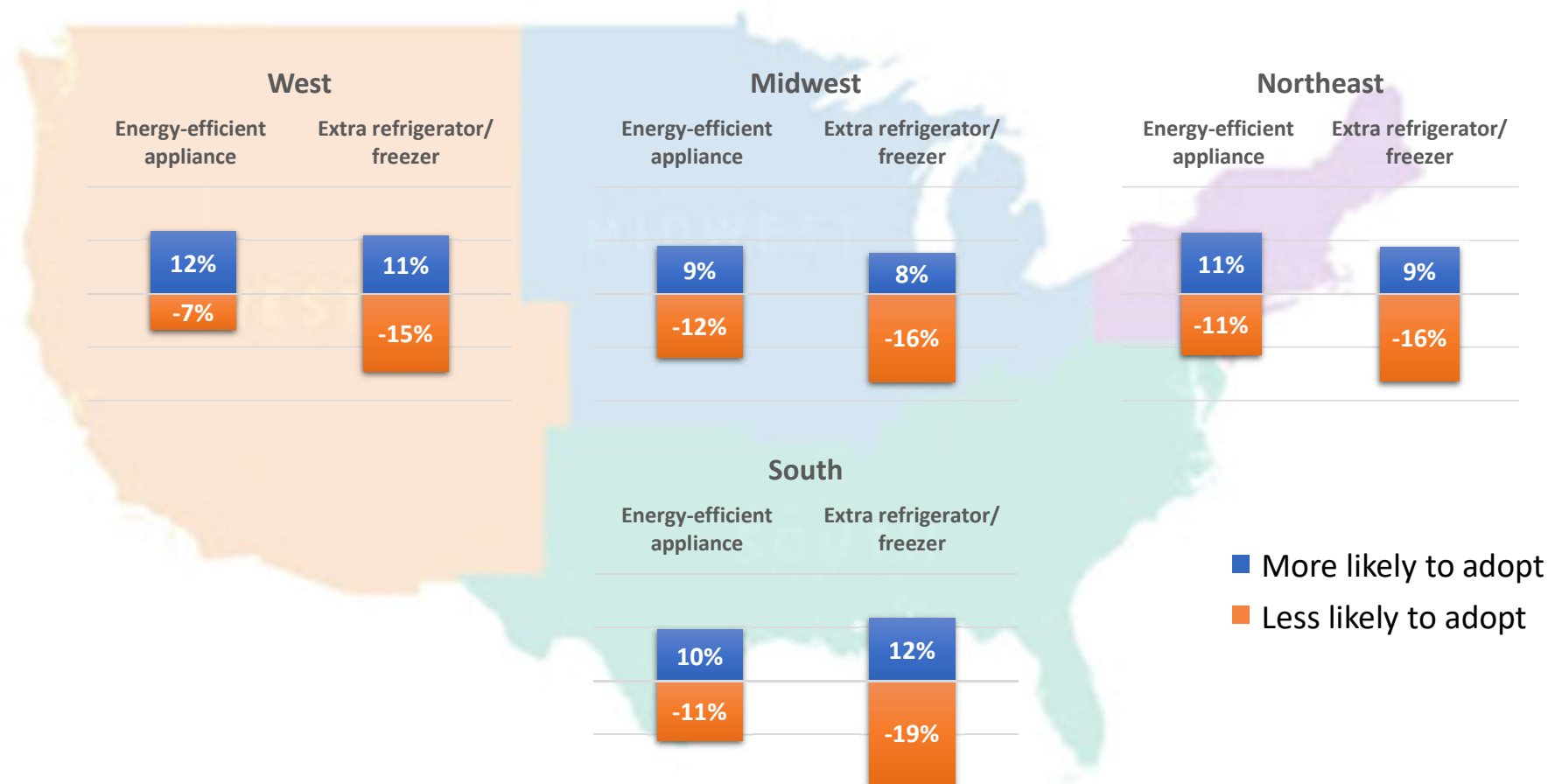
Power Generation & Storage



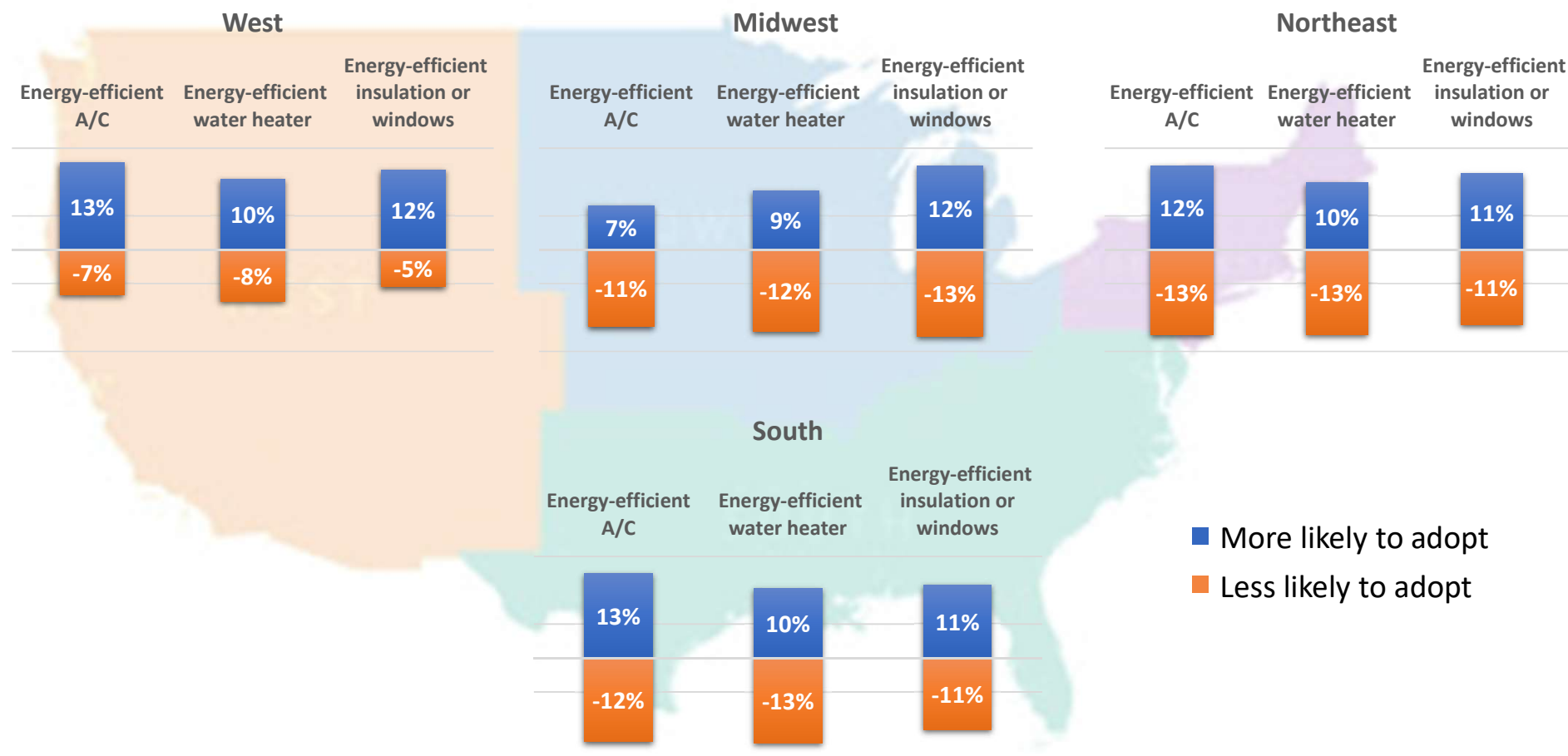
Smart Devices



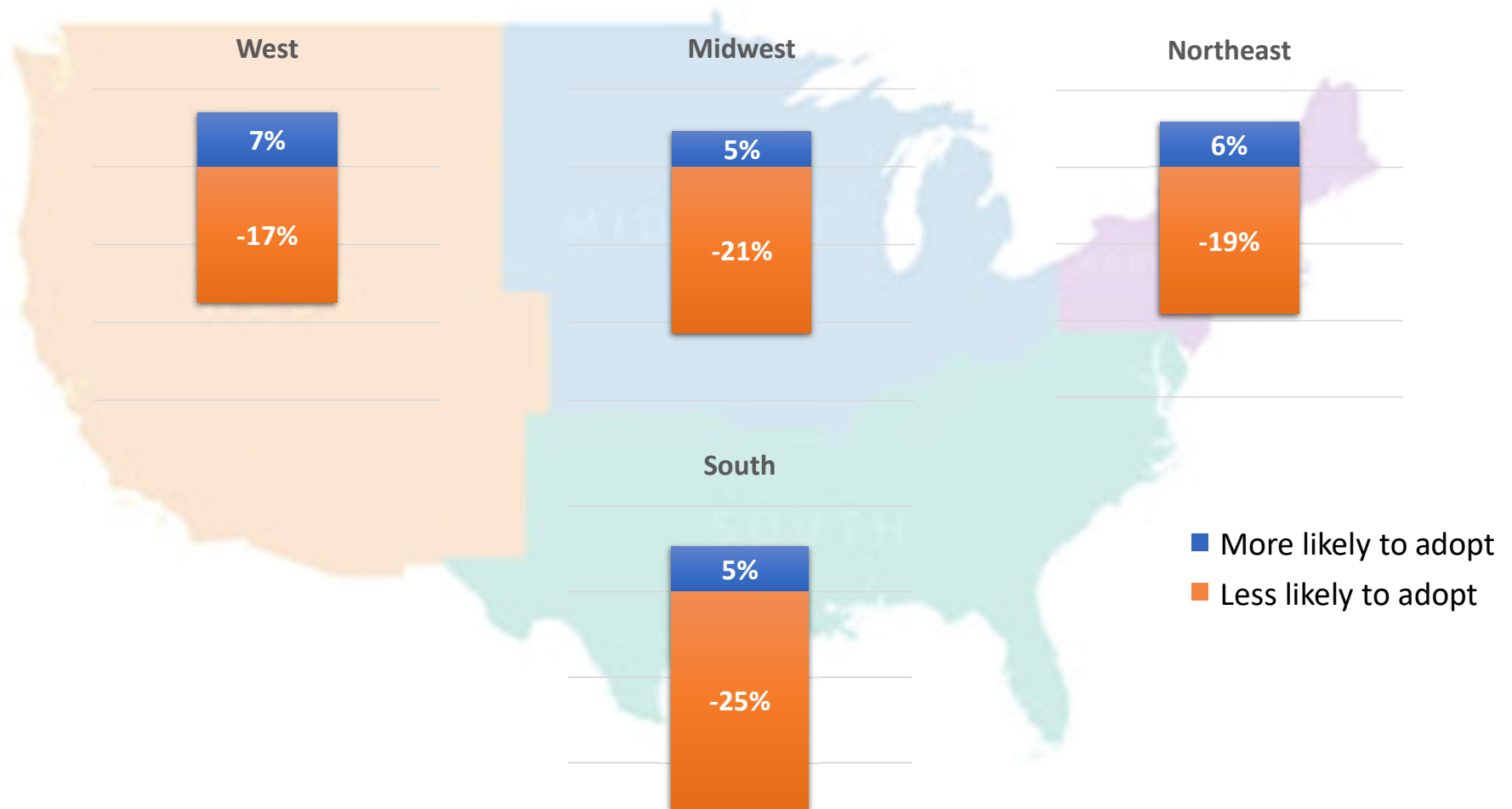
Home Appliances



Energy-efficient Upgrades

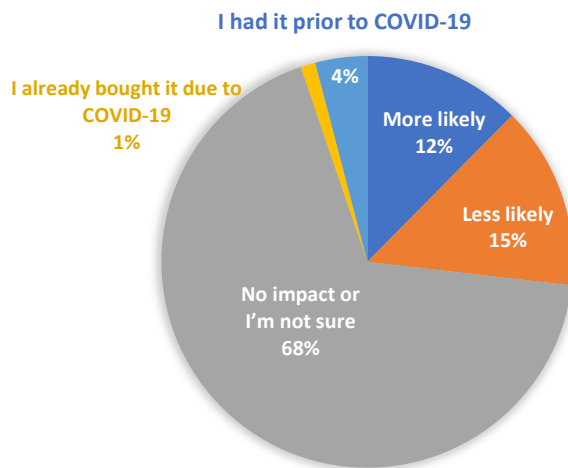


Electric Vehicles

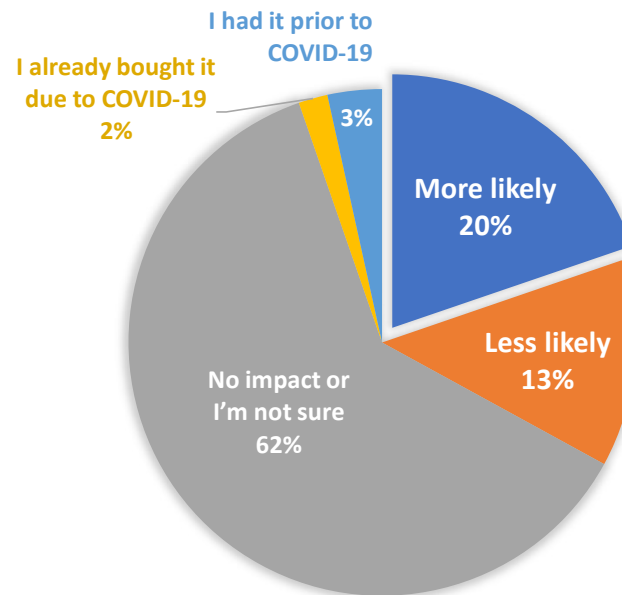


COVID-19 spurs greatest uptick in solar panel interest among 30-44 age bracket; least among 65+ age bracket

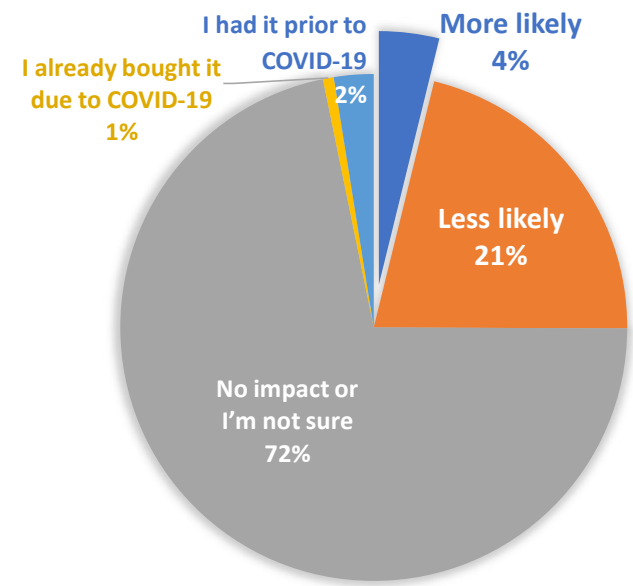
All Respondents



30-44 Age Bracket



65+ Age Bracket



Similar age-segment trend for COVID-19 impact on interest in other technologies

Together...Shaping the Future of Electricity

Water COSS: Allocation of late payment fees based on actual 2019

	<u>Actual 2019</u>	<u>New Factor 23</u>	<u>PAWC-Factor 20</u>
Residential	3,114,547	0.8218	0.6391
Commercial	539,341	0.1423	0.2412
Industrial	41,316	0.0109	0.0396
Public (Municipal)	54,060	0.0143	0.0263
Other Water Utilities - Group A	} 3,747	0.0009	0.0010
Other Water Utilities - Group B		0.0001	0.0003
Private Fire Protection	} 36,786	0.0033	0.0072
Public Fire Protection		0.0064	0.0453
Total	3,789,797	1.0000	1.0000

Source: OCA 08-004

Water COSS: Allocation of Citizens Acquisition CIAC and CAC

	Factor 4	Factor 4 excluding Public and OWU	New Factor 24
Residential	0.5815	0.5815	0.5993
Commercial	0.2814	0.2814	0.2900
Industrial	0.0391	0.0391	0.0403
Public (Municipal)	0.0280	-	-
Other Water Utilities - Group A	0.0013	-	-
Other Water Utilities - Group B	0.0004	-	-
Private Fire Protection	0.0102	0.0102	0.0105
Public Fire Protection	0.0581	0.0581	0.0599
Total	1.0000	0.9703	1.0000

Source: Factor 4 from PAWC Exh. 12-A; exclusion of Public and OWU from OCA 08-003

Results of OCA Proposed Changes in Water COSS Before Subsidies

	<u>PAWC as filed</u>	<u>OCA</u>	<u>Difference</u>
Residential	\$ 442,738,220	\$ 441,923,453	\$ (814,767)
Commercial	166,342,736	166,688,287	345,551
Industrial	26,863,483	26,970,137	106,654
Public (Municipal)	18,048,262	18,164,097	115,835
Other Water Utilities - Group A	694,867	695,583	716
Other Water Utilities - Group B	231,804	232,778	974
Private Fire Protection	4,822,411	4,855,537	33,126
Public Fire Protection	<u>8,607,527</u>	<u>8,819,438</u>	<u>211,911</u>
Total Sales of Water	\$ 668,349,310	\$ 668,349,310	\$ -

FINANCING AND CHARGES FOR WASTEWATER SYSTEMS

WEF Manual of Practice No. 27

Fourth Edition

2018

Water Environment Federation
601 Wythe Street
Alexandria, VA 22314-1994 USA
<http://www.wef.org>

9

Wet Weather Financing and Cost Recovery

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1.0 INTRODUCTION

In the context of wastewater systems, the term *wet weather flows* refers to rainfall- and snowmelt-induced extraneous “inflows” that are conveyed by a combined sewer system (CSS), separate storm sewer system, or as a direct surface discharge to receiving waters. The characteristics of wet weather flows and their potential environmental, economic, and community effects are quite different from that of groundwater inflow and infiltration (I/I) that occur naturally in a wastewater system. From a wastewater system perspective, the existence of wet weather flows is not a new phenomenon. In the discussion of cost-causative factors in Chapter 6, the wet weather flows are deemed a part of I/I, and guidelines are provided to allocate I/I costs to volumetric and customer-cost components.

However, many wastewater utilities, especially those with a CSS, grapple with significant unfunded regulatory mandates to manage wet weather flows in the form of long-term control plan (LTCP) requirements and consent decrees. With escalating regulatory and infrastructure management costs, many utilities recognize the need for alternative forms of financing and cost recovery that not only reflect principles of equitable recovery, fairness, and revenue stability, but also provide fee reduction opportunities for private and public on-site wet weather flow management. Hence, the operations and maintenance (O&M) and capital cost financing of wet weather flow management and the recovery of those costs add an additional layer of complexity in wastewater ratemaking.

In this chapter, wet weather financing and cost recovery are discussed primarily in the context of integrated wastewater utilities that have responsibilities for both sewer and stormwater management services. The following are the key questions that are pertinent to wet weather financing and cost recovery:

- What is the effect of wet weather flows on wastewater systems?
- What are some feasible financing and cost recovery mechanisms?
- What are the key considerations in wet weather cost recovery?
- What is the process for establishing an alternative cost recovery?

2.0 EFFECT OF WET WEATHER FLOWS

Typically, municipal utilities, wastewater authorities, or districts that are responsible for wastewater conveyance and/or treatment services have one or more of the following three conveyance systems within their service area:

- Combined sewer systems that convey both sanitary wastewater and stormwater inflows in the same conveyance system;
- A separate sanitary sewer system that typically only conveys sanitary wastewater flows; and
- A municipal separate storm sewer system (MS4) that typically only conveys stormwater flows.

The excessive wet weather flows that result from significant wet weather events exert different levels of effect depending on the types of wastewater conveyance systems that exist within a municipality or a service territory.

2.1 Effect on Combined Sewer Systems

In service areas with a CSS, excessive wet weather flows could potentially exceed the capacity of the CSS and/or water resource recovery facilities. In such a situation, wet weather flows could trigger combined sewer overflows (CSOs), where the untreated combined wastewater is directly discharged to surface receiving waters without the benefit of even primary treatment. Aging and deteriorating wastewater infrastructure can further exacerbate such CSO issues. Frequent and highly publicized incidents of CSOs into rivers and streams, as well as water main breaks in the nation's largest cities, are the most visible manifestations of this deteriorating infrastructure problem (Gomez, 2013). Combined sewer overflows directly impair water quality, harm aquatic life, cause health hazards, and affect recreational uses of the surface waters.

According to the U.S. Environmental Protection Agency, CSOs are a priority water pollution concern for municipalities with CSOs (www.epa.gov). Many older large and small urban municipalities and regional facilities, including those in New York, New York; Philadelphia, Pennsylvania; Washington, D.C.; Cincinnati, Ohio (Metropolitan Sewerage District); and Kansas City, Missouri, face federal- and state-issued consent decrees or consent order agreements that require mitigation and/or elimination of CSOs and adherence to other stringent regulatory requirements. Compliance with the consent decree or consent order requires significant investments (i.e., billions of dollars) in LTCP initiatives.

2.2 Effect on Separate Sanitary Sewers

In separate sanitary sewers, especially those with aging infrastructure that may be prone to significant sewer defects and associated I/I problems, wet weather flows can exacerbate I/I problems, causing sanitary sewer overflows (SSOs). Many municipalities with SSOs also face consent orders because

the SSOs are also point-source discharges. Significant investments in I/I reduction and other wet weather management initiatives may be needed to mitigate SSOs.

2.3 Effect on Municipal Separate Storm Sewer System

Wet weather flows affect MS4s in a number of ways, including flooding, habitat degradation, streams and channel erosion, and other significant water quality issues such as sedimentation and pollution resulting from stormwater runoff.

Although the nature of wet weather flow effect varies with the types of conveyance systems, a common concern among all these systems is the significant financial investment that is involved in the management of wet weather flows.

3.0 WET WEATHER CAPITAL FINANCING ALTERNATIVES

The internal and external capital program financing alternatives that are described in Chapter 4 could all be considered to effectively finance wet weather-related capital infrastructure investments. In addition to using gray infrastructure to manage wet weather, utilities are also increasingly integrating multibenefit land use management and private stormwater best management practices to their wet weather management portfolio and/or LTCP initiatives. For example, the Philadelphia Water Department has designed the "Green City, Clean Waters" plan to mitigate CSOs and reduce water pollution. This 25-year cost-saving program relies heavily on the use of green infrastructure (www.phillywatersheds.org). Hence, additional innovative financing mechanisms are often necessary to effectively fund these types of wet weather initiatives.

The type of capital financing for land management-based capital initiatives would vary between public and private stormwater management initiatives.

3.1 Public Stormwater Management Capital Initiatives

Utilities can undertake recurring program initiatives such as downspout disconnection programs and residential- and neighborhood-level green initiatives to mitigate wet weather contribution. Such programs can be budgeted as annual routine capital outlay and funded through user rates and charges.

However, other large-scale capital initiatives, such as a multibenefit sewer separation project and/or a wetlands development project, can be more cost effectively financed through a combination of land conservation

loans, grants, state revolving fund loans, bond financing, and other contributions. Leveraging multiple sources of funding for a large-scale project can be more cost effective than a single source of funding.

To meet the expensive consent order, LTCP, and water quality requirements, utilities are beginning to engage in public-private partnerships where practical. A multi-entity partnership, such as the one the District of Columbia Water and Sewer Authority (DC Water) engaged in to issue its first environmental impact bond, could be considered, if appropriate, for accelerating wet weather initiatives while also mitigating the risks of financial investments, especially in emerging and pilot green initiatives.

3.2 Private Stormwater Management Capital Initiatives

Many urban municipalities also provide grants to encourage stormwater management projects in private properties. Such types of funding may require a multi-entity complex structure because the utility may not be able to directly administer a grant to a private property. In addition, in such situations, even if the utility provides partial funding in the form of grants, it will not be able to own and include the stormwater assets as part of its asset base. Hence, a utility may have to finance such grants as an O&M cost and not as a capital initiative.

Philadelphia offers multimillion-dollar grant funding to private non-residential properties under its Green Acres Retrofit Program (GARP). The program costs are outlined in the annual operating budget, and the grant is targeted toward CSO mitigation in combined sewer areas. Philadelphia recovers the GARP-related costs through sewer and stormwater rates and charges.

A key consideration in wet weather capital financing in jurisdictions with CSS is the approach used to recover the costs. In some of these jurisdictions, the urban core may have the older CSS infrastructure and the associated CSO mitigation initiatives, whereas the surrounding suburban areas may have the newer MS4 infrastructure. Therefore, utilities would have to consider these factors in evaluating alternative capital cost recovery mechanisms, and, more specifically, the appropriateness of apportioning stormwater management practices costs between sewer and stormwater utilities.

4.0 WET WEATHER COST RECOVERY

The challenge of managing wet weather flow lies not only in the diverse effect it has on conveyance systems, but also in the delineation of responsibilities among various entities. In municipalities where multiple entities

are involved, wet weather financing and associated cost recovery becomes more nuanced and complex.

4.1 Delineation of Wet Weather Management Responsibilities

In some municipalities, such as in Philadelphia, the water/sewer utility is responsible for managing all aspects of wet weather flows, including LTCP/ National Pollutant Discharge Elimination System requirements and MS4 requirements. However, in other municipal jurisdictions, an independent authority such as DC Water may be responsible for managing wet weather flows only in the CSS and separate sanitary sewer systems, while the municipality, in this case the District of Columbia, may be directly responsible for all MS4 requirements.

Even within a MS4 service area, the responsibilities are often shared by the utility and the municipality. Consequently, there are also significant differences among municipalities in the types of wet weather capital financing and cost recovery mechanisms that they use to recover the O&M, debt service, pay-as-you-go, and other relevant annual wet weather costs. Table 9.1 shows some examples of the diversity that exists in how wet weather management-related revenue requirements are recovered from the customer base.

4.2 Key Considerations in the Recovery of Wet Weather Costs

Several considerations play a role in the recovery of wet weather management costs, and many of these are interrelated. These are described not as stipulations, but as guidelines for defining cost recovery policies. Municipalities and large metropolitan areas need to define their own wet weather cost recovery policies based on practical considerations and nuances that

TABLE 9.1 Primary cost recovery approach for wet weather revenue requirements.

Wet weather program	Primary approach to cost recovery		
	Example 1	Example 2	Example 3
CSS & separate sanitary sewer revenue requirements	Sewer charges	Sewer charges	Sewer charges (AND) stormwater charges
MS4 revenue requirements	Sewer charges (OR) taxes/ assessments	Stormwater charges	Stormwater charges

closely meet the utility's strategic direction and needs, objectives, regulatory requirements, and other specific circumstances.

4.2.1 Equity of Cost Recovery

Cost recovery approaches that recover all of the wet weather revenue requirements based entirely on sewer charges and/or taxes (see Table 9.1, Example 1) may provide for administrative simplicity and ease of customer understanding. However, such approaches may affect equity of cost recovery. Sewer charges are typically based on the volume of water usage, and taxes are based on property value, both of which have very limited correlation to the magnitude of a property's wet weather contribution. Therefore, other cost recovery mechanisms such as an impervious area-based wet weather fee could be integrated to a user-fee rate structure portfolio.

4.2.2 Recognizing Historical System Development

Equity also may be compromised by relying entirely on cost-allocation methodologies based on current use proportionality, or even current capacity claims, that ignore historical system development. In many cases, wastewater systems that were developed in the urban core, often with combined sewers, provided the foundation for later suburban development with separated systems. If the costs associated with these urban combined systems are allocated entirely by reference to current uses or capacity claims, separated suburban systems may be inequitably relieved of responsibility for the costs of combined systems that enabled growth in a metropolitan region. In these cases, a number of alternative approaches can be used to more equitably recover what are fundamentally "common-to-all" costs. This can be done through wastewater charges—for example, charges based on retail customers served or flow metrics—or through different revenue recovery mechanisms. For example, the City of Atlanta implemented a Municipal Option Sales Tax in part to distribute cost responsibility for their Combined Sewer Overflow Consent Decree across the Atlanta metropolitan region.

4.2.3 Revenue Stability

Recovery of wet weather costs through volumetric-based sewer charges can affect revenue stability because of the volatility in a customer's water usage and, similarly, a tax-based revenue recovery could create revenue uncertainty because of the changing priorities of tax expenditures. Because impervious area within a property is a relatively more stable measure of stormwater contribution than the volume of water usage, including an impervious area-based

fee as part of a utility's overall sewer rate structure could enhance revenue stability.

4.2.4 Fee Reduction Options

The ability to provide fee reduction options is an integral and essential component of any user fee cost recovery approach. Properties with large imperviousness contribute more to wet weather flows than properties with smaller impervious areas. Therefore, using alternative means such as impervious area-based wet weather fees would provide greater flexibility to afford fee-reduction options to ratepayers that deploy on-site stormwater best management practices.

4.2.5 Legal Considerations

In considering alternative approaches to wet weather cost recovery, it is critical to evaluate legal considerations including legislative authority, potential changes to existing municipal or authorities' charters to assess and collect fees, and other applicable legislative aspects.

5.0 WET WEATHER RATE-SETTING APPROACH

The concept of establishing a distinct wet weather fee (often referred to as a *stormwater user fee*) is becoming more prevalent in the United States (Western Kentucky University, 2016) because of its multiple benefits, discussed in the previous section. Figure 9.1 presents an illustration of the key tasks involved in developing an impervious area-based wet weather fee.

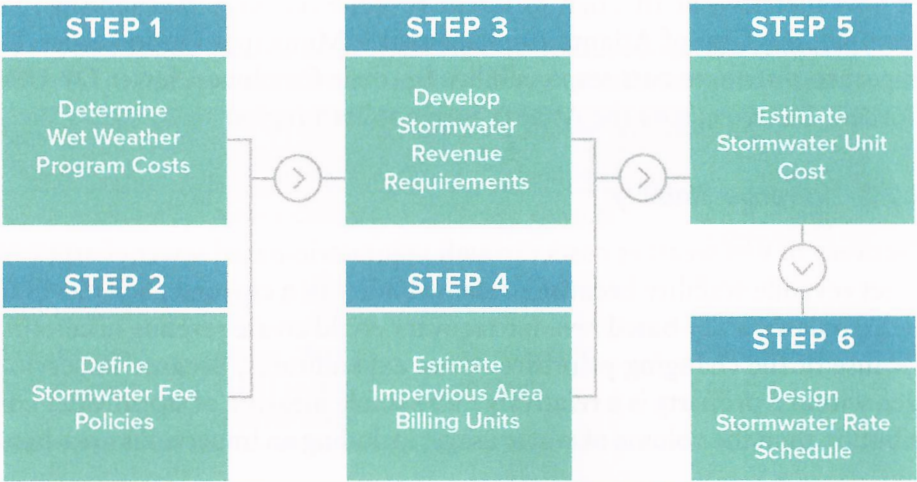


FIGURE 9.1 Key steps in developing a wet weather (stormwater) fee.

5.1 Delineation of Program Costs

To determine current and future program costs, to the extent practical, key wet weather-related O&M activities and the associated costs need to be identified. The types of O&M and capital costs that a utility includes in the delineation of wet weather program costs depend on a utility's overall mission, operational level of service, community needs, regulatory obligations, and system infrastructure.

In jurisdictions that only have MS4 service areas, typical stormwater program cost elements include stormwater collection and drainage, green infrastructure best management practices (BMPs), asset mapping and management, stormwater treatment, MS4 permit compliance and enforcement activities, source water and/or watershed protection programs, and pertinent planning and administrative activities.

In jurisdictions that include CSS, the complexity of stormwater cost delineation increases (WEF Special Publication, 2013) because stormwater is also conveyed through the CSS to water resource recovery facilities. In service areas with CSS, utilities incur significant O&M and capital costs to mitigate CSOs and to meet, where applicable, consent decree requirements. Therefore, to determine total wet weather costs, utilities could allocate a reasonable portion of the CSS O&M and capital costs to stormwater services.

The CSS costs that could be allocated include conveyance, pumping, treatment, CSO-mitigating green initiatives, public education, and other pertinent administrative costs. To be defensible, utilities must exercise engineering science-based sound principles and available budget and actual cost data to allocate a portion of the CSS costs to stormwater. For example, O&M costs relating to inlets/catch basin cleaning and debris disposal in the CSS areas could be allocated 100% to stormwater. All other CSS costs could be apportioned between sanitary sewer service and stormwater service.

5.2 Stormwater Fee Policies and Legal Considerations

In establishing a distinct stormwater or wet weather fee, it is prudent to first develop a set of key policies such that key assumptions used in the cost-of-service analysis, fee methodology, and rate design are consistent and defensible. The framework should clearly define the basis for key aspects, including the following:

- Apportioning of CSS and MS4 costs to stormwater revenue requirements,
- Geographical considerations,
- Capital program financing and other financial policies pertinent to stormwater revenue requirements,

- Stormwater customer classification,
- Impervious area estimation methodology,
- Billing and enforcement,
- Rate structure design and stormwater credits, and
- Other pertinent considerations.

In addition to the development of a policy framework, early in the process utilities must conduct a due diligence review of federal, state, and local enabling legislation, the charter under which the utility operates, to affirm that the utility has the authority to implement a stormwater or wet weather fee within its jurisdiction. It is also important to understand state and local statutes and ordinances regarding the ability to assess stormwater fees on certain classes of properties and user fee voter approval/referendum procedures.

5.3 Stormwater Revenue Requirements

The next critical step is to develop the stormwater revenue requirement that is to be recovered from a separate stormwater user fee or a wet weather fee. Once stormwater program costs are delineated, as discussed in Section 5.1, a comprehensive multiyear revenue requirement analysis should be performed. Annual revenue requirements would typically include recurring annual O&M costs, debt service expenses, pay-as-you-go cash financing, reasonable operating capital, and any equipment reserve requirements and debt service coverage requirements, where applicable.

When establishing a new stormwater user fee, it is also important to consider the inclusion of one-time implementation costs and any one-time program ramp-up costs in the determination of revenue requirements.

Potential annual revenues from other sources such as stormwater plan and inspection reviews, any stormwater low impact development in-lieu fees, and impact fees should be evaluated and deducted from the total annual revenue requirements to determine the net stormwater revenue requirement that is to be recovered from stormwater or wet weather user fees.

5.4 Impervious Area Billing Units

A critical challenge in establishing a wet weather fee or a stormwater user fee is defining the basis for assessing the fee. Because stormwater contribution from a property cannot be directly measured, other surrogate measures such as impervious area are often used to develop a fair approximation of each property's stormwater demand on a utility's wastewater system. Multiple cost-causative factors such as a property's topography, pollutant

contribution, and volume and rate of runoff can influence a property's stormwater demand. However, determining billing units based on these multiple parameters is often not practical because it is technically and administratively complex. Hence, the use of impervious area as a basis for determining billing units is more common and is a widely used best practice (Black & Veatch, 2016).

Various data sources including a municipality's tax assessment system, geographic information system (GIS), aerial and orthographic imagery, and infrared imagery can be effectively used to estimate impervious area. The properties are typically divided into stormwater classes such as single-family residential, commercial, institutional, parking, parks, and so on based on the granularity of land use information that is readily available in tax assessment and GIS systems.

Subject to data availability and the costs involved in developing the impervious area, a combination of approaches can be used to determine the impervious area for each stormwater class. The aggregate of the impervious area estimated for all classes is then defined as the systemwide impervious area.

With respect to wet weather fees, customers can seek fee reduction in the form of stormwater credits for any fully functional on-site stormwater management practices that they may have deployed to manage stormwater contribution. In addition, customers may also seek fee adjustments because of potential data inaccuracies or exceptions in the impervious area. Therefore, to account for potential revenue reductions because of stormwater credits and appeals, it is imperative that the initial estimate of systemwide impervious area be reduced before finalizing the total billable impervious area.

The billing unit for a stormwater or wet weather fee is often expressed using a single parameter such as an impervious area square footage or an equivalent runoff unit (ERU), which is also referred to as an *equivalent residential unit*. The average or median impervious area square footage of the single-family residential class is defined as one ERU. The total systemwide billable impervious area is then expressed in terms of ERUs.

5.5 Stormwater Unit Cost

Just as water and sewer rates are often expressed in terms of cost per hundred cubic feet (\$/Ccf) (also expressed as cost per thousand gallons, or \$/1000 gal), a stormwater user fee is expressed as rate per ERU (\$/ERU). The annual net revenue requirement is divided by the total estimated billable stormwater units (ERUs) to determine the systemwide monthly or annual

stormwater unit cost. Table 9.2 provides an example illustration of the calculation of a stormwater unit cost for a representative year, which then provides a defensible basis for designing the stormwater user fee rate structure.

5.6 Stormwater Rate Design

Most of the rate-policy objectives discussed in Chapter 8, such as fairness and equity, administrative ease, customer understanding, and affordability considerations, are applicable in the design of a stormwater or wet weather fee structure. Key components of a stormwater rate structure typically include the following:

- Residential. Single-family residential properties (often defined as buildings with up to three or four dwelling units) can be charged based on one of the following three alternatives: (1) a uniform monthly fee where all properties pay the same fee; (2) a tiered impervious area fee where, based on a distribution analysis of the impervious area, three to five tiers of impervious area are designed; or (3) an individual calculation for each parcel in which the monthly ERU rate is applied to each parcel's specific impervious area. Each approach has its benefits and disadvantages that have to be carefully considered in selecting the best-suited alternative;
- Nonresidential. Because of the significant differences in impervious area characteristics among the various nonresidential classes of properties, including multifamily properties and condominiums, it is prudent to calculate the stormwater charge for each parcel by applying the monthly ERU rate to each parcel's specific impervious area; and
- Minimum charge. Many utilities also establish a minimum charge that either equates to one ERU or the monthly fee of the lowest impervious area tier, if the utility has a tiered rate structure.

TABLE 9.2 Example calculation of stormwater unit cost (\$/ERU).

Description	Amount (1)	Total system ERUs (2)	Annual stormwater ERU cost (3) = (1)/(2)	Monthly stormwater ERU rate (4) = (3)/12
Annual stormwater				
Revenue requirements	\$8,615,000	145,130	\$59.36	\$4.95

6.0 CASE STUDIES

6.1 District of Columbia

6.1.1 Overview

The stormwater management responsibilities are shared by two entities in the District of Columbia. The District Department of the Environment (DDOE) is responsible for managing the separate stormwater system and compliance with the District's MS4 permit. DC Water is responsible for the CSO LTCP and the management of wet weather issues within the combined sewer areas. Each agency has a distinct wet weather fee for recovery of wet weather-related costs. This approach to wet weather cost recovery aligns with Example 3 in Table 9.1.

6.1.2 Key Driver

Approximately 65% of the service area is a separate stormwater system and 35% is a CSS. Originally, DC Water collected all fees; however, in 2007, DDOE was established and the MS4 compliance duties were transferred to DDOE. Both DDOE and DC Water strive for equitable recovery of wet weather-related costs.

6.1.3 Costs Recovered

The DDOE has a "stormwater fee" that recovers costs associated with regulatory compliance related to the MS4 permit, including green infrastructure retrofits. In addition, DC Water has a Clean Rivers Impervious Area Charge (CRIAC), which recovers CSO consent decree compliance costs including operational upgrades, capital investments, and debt service.

6.1.4 Rate Structure

Both the DDOE stormwater fee and the DC Water CRIAC are based on actual impervious area calculations per parcel and both agencies bill their fees using an ERU that is based on the average amount of impervious surface on residential properties. In addition, both entities offer a credit program for their customers to earn a discount on their fees. The DDOE also offers a Stormwater Retention Credit Trading Program.

The District of Columbia is unique in that there are two distinct wet weather fees assessed by two different agencies. This requires the need for a clear definition of roles, responsibilities, and funding sources for the activities required to enhance stormwater management.

6.2 City of Philadelphia, Pennsylvania

6.2.1 Overview

Philadelphia Water Department (PWD) is responsible for retail water, wastewater, and stormwater services within the city's jurisdiction. Approximately 40% of the service area is a separate stormwater system and 60% is a CSS. The city recovers wet weather costs both through a sanitary sewer charge and a stormwater management service (SWMS) charge. This approach to wet weather cost recovery aligns with Example 3 in Table 9.1.

6.2.2 Key Driver

The key driver for stormwater management costs is the implementation of the "Green City, Clean Waters" initiative. This plan is an integral part of the city's CSO LTCP and its holistic approach to managing water resources for the city. The 25-year plan will transform the health of the city's creeks and rivers primarily through a land-based approach of implementing green stormwater infrastructure projects.

6.2.3 Costs Recovered

The SWMS charge is designed to recover all of the wet weather costs associated with managing the MS4 system and a portion of the CSO LTCP requirements. In addition, operation and maintenance of PWD's inlet and catch basin cleaning, stream restoration, and a portion of the green infrastructure programs and administration program costs are also recovered.

6.2.4 Rate Structure

The city's SWMS charge is based on two parameters: the average gross area square footage and the average impervious area square footage; it also includes a monthly billing and collection charge. In addition, PWD offers both stormwater credits and incentives programs, the costs of which are proportionally funded through both wastewater rates and stormwater rates.

When the SWMS charge was created in July 2010, affordability was a key concern for business and non-profit customers because, under the new system, these nonresidential customers pay based on their impervious "footprint". To mitigate this effect, the PWD phased in the new charge over 4 years and established a rate increase cap for nonresidential customers.

7.0 SUMMARY

The characteristics of wet weather and the extent of wet weather effect vary significantly among municipalities and watersheds. Determining wet

weather costs and establishing an equitable approach to the recovery of those costs can provide for revenue stability, equity of cost recovery, flexibility to encourage public and private stormwater BMPs, and the ability to better align user fees with program needs, costs, and customer benefits.

However, determining alternative wet weather financing mechanisms such as public-private partnerships and/or establishing a separate wet weather fee are critical policy decisions. These decisions need to be made based on a careful and diligent evaluation of myriad aspects, including delineation of service responsibilities, inter- and intra-governmental contractual agreements, program needs and costs, the economic environment, customer demographics and affordability, legislative feasibility, and administrative capacity and costs.

8.0 REFERENCES

- Black & Veatch (2016) *2016 Stormwater Utility Survey: A Black & Veatch Report*; Black & Veatch Management Consulting, LLC: Kansas City, Missouri.
- Gomez, A. (2013) *Water Infrastructure—Approaches and Issues for Financing Drinking Water and Wastewater Infrastructure*; Testimony before a Congressional Subcommittee, United States Government Accountability Office; GAO-13-451T.
- U.S. Environmental Protection Agency; National Pollutant Discharge Elimination System (NPDES): Combined Sewer Overflows. <https://www.epa.gov/npdes/combined-sewer-overflows-csos> (accessed Aug 2017).
- Water Environment Federation (2013) *User Fee-Funded Stormwater Programs*, 2nd ed., WEF Special Publication; Water Environment Federation: Alexandria, Virginia.
- Western Kentucky University Stormwater Utility Survey 2016; Western Kentucky University: Bowling Green, Kentucky.

9.0 SUGGESTED READINGS

- Kane, J. (2016) *Investing in Water: Comparing Utility Finances and Economic Concerns Across U.S. Cities*; *Metropolitan Infrastructure Initiative*; Brookings Institution: Washington D.C.
- Philadelphia Water Department; Green City, Clean Waters. http://phillywatersheds.org/what_were_doing/documents_and_data/cso_long_term_control_plan (accessed Aug 2017).

Interrogatory Answers Referenced
in the Testimony

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 4

OCA-04-005

Responsible Witness: Ashley E. Everette, Director of Rates and Regulatory for PAWC

Question:

Reference: PAWC St. 4 (Everette), p. 35, lines 12-16.

- a. Please explain in detail the reasons for proposing a single rate schedule for McKeesport wastewater customers, compared to the existing separate rates for Port Vue customers.
- b. Please reconcile this proposal with the statements by Ms. Heppenstall (PAWC St. 12, p. 31, lines 16-21, noting that 75% of the Port Vue system is sanitary sewer only, as compared to the remainder of the McKeesport system which is “almost entirely a CSS [combined sewer system].”

Response:

- a. The settlement relative to the Company’s acquisition of the McKeesport system (Docket No. A-2017-2606103) requires the Company to set the rates for all McKeesport customers in this rate case equal to Rate Zone 1 wastewater rates. The settlement, which was approved by the Commission, states in part (emphasis added):

In its first base rate case following the closing of the acquisition, PAWC will propose to establish a rate zone for McKeesport and **increase the rates of the System to an amount equal to the Zone 1 wastewater rates** of PAWC's wastewater division, unless such increase would be more than two times the system-average increase for the wastewater division (calculated on a percentage increase basis).

The settlement makes no exception or separate provision for the Port Vue customers within the McKeesport system and such increase will not be more than two times the system-average increase for the wastewater division.

- b. Please see my response to part (a) above.

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 4

OCA-04-018

Responsible Witness: Constance E. Heppenstall, Senior Project Manager of Gannett Fleming

Question:

Reference: PAWC St. 12 (Heppenstall), p. 33, lines 1-2. Please explain in detail why McKeesport stormwater costs were “reallocated to the sanitary classes based on Factor 1A.” In the explanation, please explain (a) why a separate stormwater rate was not developed and (b) why Factor 1A (allocation of infiltration and inflow) was used to allocate stormwater costs among the sanitary sewer using customer classes. Please include any analyses, workpapers, studies, or other documents that helped inform the decision.

Response:

(a) Please refer to the Company’s response to I&E-RS-16 for an explanation of why the Company is not implementing a stormwater fee for its wastewater service.

(b) As explained in PAWC Statement No. 12, the allocation of stormwater was based on methods to allocated I&I described in the “Financing and Charges for Wastewater Systems”, Manual of Practice No. 27, published by the 9 Water Environment Federation (“Manual of Practice No. 27”). As stormwater is comparable to other forms of I&I, it is allocated in the same manner.

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 4

OCA-04-025

Responsible Witness: Constance E. Heppenstall, Senior Project Manager of Gannett Fleming

Question:

Reference: PAWC St. 12 (Heppenstall), p. 41, lines 12-15.

- a. Please explain in detail the reasons why the witness believes the wastewater customer charge should have, as a goal, recovering “all customer costs and 2/3 of I&I costs.”
- b. The stated goal was not listed as one of the rate design criteria given to Ms. Heppenstall by PAWC. What is the source of this goal?
- c. Please provide any studies, publications, or analyses on which the witness relied in determining that this was an appropriate rate design goal.
- d. Please confirm that the existing customer charges of \$10.00 for residential customers, \$8.00 for low-income residential customers, and \$25.00 for commercial customers collect \$2,761,455 in the Wastewater SSS area excluding Sadsbury and Exeter (PAWC Exh. 12-K, p. 11), which is more than the total customer-related cost shown in the cost-of-service study for 2022 in that rate area (\$1,431,015 + \$824,037 for Customer Facilities and Customer Accounting costs, respectively, shown in PAWC Exh. 12-C, p. A-22). If this is not confirmed, please provide a corrected calculation.
- e. Is there a difference between customer costs and direct customer costs for the Wastewater SSS area excluding Sadsbury and Exeter? If so, please provide a calculation of direct customer costs for that rate area that is comparable to the calculation provided in PAWC Exh. 12-A, p. A-47.

Response:

- a. “Financing and Charges for Wastewater Systems, Manual of Practice 27”, published by the Water Environment Federation shows on Table 7.7, page 139, that it is appropriate to allocate 2/3 of the costs related to I&I on a customer basis and recovered on a customer basis. This direction recognizes that the level of I&I is a function of both wastewater volumes and the number of connections. Since 2/3 of I&I costs are allocated based on the number of customers, cost causation principles support recovering these costs in the customer charge.
- b. Please refer to the response to part (a) above.

- c. Please refer to the response to part (a) above. The word “goal” was used differently in each of the two sources referenced. The appropriate level of costs to be recovered on a customer basis in the customer charge is a cost-allocation exercise that, like other cost-allocation issues, the Company assigned to Ms. Heppenstall to address based on her expertise on cost-allocation methods and procedures.
- d. The total customer-related costs are shown in the OCA-04-025_Attachment which were inadvertently not included in Exhibit 12-C. These schedules show customer costs of \$9,812,081 in Rate Year 1 and \$10,610,723 in Rate Year 2.
- e. Please refer to OCA-04-25_Attachment, which shows the direct customer costs and calculations for the rate area.

PENNSYLVANIA AMERICAN WATER
WASTEWATER OPERATIONS EXCLUDING SADBURY AND EXETER WASTEWATER

CALCULATION OF CUSTOMER COST PER MONTH - 2021

		<u>Per Month</u>
(1) Cost Related to Customer Facilities	\$ 1,177,928	
(2) Service Equivalents X 12	338,874	
(3) Cost per Bill - Meter related		\$ 3.48
(4) Cost Related to Customer Accounting	\$ 731,563	
(5) Number of Bills	311,604	
(6) Cost per Bill		\$ 2.35
(7) Cost Related to I&I	\$ 11,853,293	
(8) Percentage of I&I Cost to to be recoverd in Customer Charge	66.67%	
(9) Net Cost Related to I&I to be recovered in Customer Charge	\$ 7,902,590	
(10) Service Equivalents X 12	338,874	
(11) Cost per Bill - I&I Related		\$ 23.32
(12) Total Customer Costs (3)+(6)+(11)		\$ 29.14

PENNSYLVANIA AMERICAN WATER
WASTEWATER OPERATIONS EXCLUDING SADBURY AND EXETER WASTEWATER

CALCULATION OF CUSTOMER COST PER MONTH - 2022

		<u>Per Month</u>
(1) Cost Related to Customer Facilities	\$ 1,431,015	
(2) Service Equivalents X 12	316,068	
(3) Cost per Bill - Meter related		\$ 4.53
(4) Cost Related to Customer Accounting	\$ 824,037	
(5) Number of Bills	316,140	
(6) Cost per Bill		\$ 2.61
(7) Cost Related to I&I	\$ 12,532,880	
(8) Percentage of I&I Cost to to be recoverd in Customer Charge	66.67%	
(9) Net Cost Related to I&I to be recovered in Customer Charge	\$ 8,355,671	
(10) Service Equivalents X 12	316,068	
(11) Cost per Bill - I&I Related		\$ 26.44
(12) Total Customer Costs (3)+(6)+(11)		\$ 33.57

PENNSYLVANIA AMERICAN WATER
WASTEWATER OPERATIONS EXCLUDING SADBURY AND EXETER WASTEWATER

CALCULATION OF DIRECT CUSTOMER COST PER MONTH - 2021

		<u>Per Month</u>
(1) Cost Related to Customer Facilities	\$ 1,679,873	
(2) Service Equivalents X 12	338,874	
(3) Cost per Bill - Meter related		\$ 4.96
(4) Cost Related to Customer Accounting	\$ 523,685	
(5) Number of Bills	311,604	
(6) Cost per Bill		\$ 1.68
(7) Cost Related to I&I	\$ 11,853,293	
(8) Percentage of I&I Cost to to be recoverd in Customer Charge	66.67%	
(9) Net Cost Related to I&I to be recovered in Customer Charge	\$ 7,902,590	
(10) Service Equivalents X 12	338,874	
(11) Cost per Bill - I&I Related		\$ 23.32
(12) Total Customer Costs (3)+(6)+(11)		\$ 29.96

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER OPERATIONS EXCLUDING SADBURY AND EXETER
ANALYSIS OF DIRECT CUSTOMER COSTS - 2021

Description	Customer Facilities	Billing & Collecting
Operation and Maintenance Expenses		
Customer Accounting Expenses		417,904
Management Fees - Customer		61,002
Employee Pension and Benefits		13,150
Transportation Expense		8,667
Worker's Compensation		3,350
Other Rev.		(33,377)
Subtotal	-	470,695
Depreciation Expense		
Service Laterals	540,920	
Office Furniture & Equipment		1,606
Transportation Equipment		22,537
Subtotal	540,920	24,143
Taxes Other Than Income		
Payroll Taxes	-	3,686
Assessments	7,386	4,578
Subtotal	7,386	8,265
Rate Base		
Service Laterals	13,296,914	
Office Furniture and Equipment	-	18,190
Transportation Equipment	-	223,676
Subtotal	13,296,914	241,866
Return and Income Taxes	1,131,568	20,583
Total Direct Customer Costs	<u>\$ 1,679,873</u>	<u>\$ 523,685</u>
Plus I&I Costs	11,853,293	
2/3 of I&I Costs	7,902,195	

PENNSYLVANIA AMERICAN WATER
WASTEWATER OPERATIONS EXCLUDING SADBURY AND EXETER WASTEWATER

CALCULATION OF DIRECT CUSTOMER COST PER MONTH - 2022

		<u>Per Month</u>
(1) Cost Related to Customer Facilities	\$ 2,052,860	
(2) Service Equivalents X 12	343,410	
(3) Cost per Bill - Meter related		\$ 5.98
(4) Cost Related to Customer Accounting	\$ 595,653	
(5) Number of Bills	316,140	
(6) Cost per Bill		\$ 1.88
(7) Cost Related to I&I	\$ 12,532,880	
(8) Percentage of I&I Cost to to be recoverd in Customer Charge	66.67%	
(9) Net Cost Related to I&I to be recovered in Customer Charge	\$ 8,355,671	
(10) Service Equivalents X 12	343,410	
(11) Cost per Bill - I&I Related		\$ 24.33
(12) Total Customer Costs (3)+(6)+(11)		\$ 32.19

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER OPERATIONS EXCLUDING SADBURY AND EXETER
ANALYSIS OF DIRECT CUSTOMER COSTS - 2022

Description	Customer Facilities	Billing & Collecting
Operation and Maintenance Expenses		
Customer Accounting Expenses		455,876
Management Fees - Customer		63,059
Employee Pension and Benefits		14,611
Transportation Expense		9,320
Worker's Compensation		3,597
Other Rev.		(35,664)
Subtotal	-	510,799
Depreciation Expense		
Service Laterals	646,573	
Office Furniture & Equipment		1,658
Transportation Equipment		30,639
Subtotal	646,573	32,296
Taxes Other Than Income		
Payroll Taxes	-	4,010
Assessments	9,212	5,288
Subtotal	9,212	9,298
Rate Base		
Service Laterals	16,051,934	
Office Furniture and Equipment		203,059
Transportation Equipment		293,980
Subtotal	16,051,934	497,039
Return and Income Taxes	1,397,075	43,260
Total Direct Customer Costs	<u>\$ 2,052,860</u>	<u>\$ 595,653</u>
Plus I&I Costs	12,532,880	
2/3 of I&I Costs	8,355,253	

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 7

OCA-07-001

Responsible Witness: Andrew Clarkson, Vice President of Operations for PAWC

Question:

Water Systems

For each of the Company's water supply and distribution systems:

- a. Do all customers have a separate service line? If not, please explain.
- b. Do all customers have a separate curb stop/shut-off valve? If not, please explain.
- c. Do all customers have a separate water meter? If not, please explain.

Response:

- a. All water customers do not have separate service lines. There are approximately 21,000 shared service lines across the Company's service territory. Most shared service lines are in the Scranton (approximately 14,000), McMurray (approximately 1,100) and Butler (710) Districts. Most districts have a small number of shared service lines because the dwellings were older construction at the time the Company acquired the water system. All new construction is required to have separate service lines.
- b. Please refer to the response to part a. PAWC has installed approximately 15,000 Remote Disconnect Meters on shared service/curb stop customers.
- c. Most customers have a separate water meters except for the following:
 - There are 115 connections in the Company's Fernwood/Lehman Pike District without separate water meters. PAWC is in the process of installing meters.
 - PAWC has been serving as the receiver of the Winola Water Company since December 2018 pursuant to a proceeding before the Commission. The parties reached a settlement, and on June 2, 2020, a Joint Petition for Approval of all Settlement Issues was filed with the Commission. Winola Water Company customers do not have water meters. The Settlement provides for the installation of meters.

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 8

OCA-08-003

Responsible Witness:

Constance E. Heppenstall, Senior Project Manager of Gannett Fleming (part A)
Ashley E. Everette, Director of Rates and Regulatory for PAWC (part B)

Question:

Reference: PAWC Exh. 12-A, pp. 13 and 37 (line for Citizens Acquisition CIAC and CAC).

- a. Please explain why this item is allocated using factor 4 (base - maximum hour) rather than a factor that more closely relates to the customer classes that originally made the contributions.
- b. Please provide the Company's records showing the source, by customer class, of the CIAC and CAC from the Citizens acquisition. If such records do not exist, please provide a workpaper showing the number of customers, by customer class, acquired from Citizens.

Response:

- a. Factor 4 is used to allocate costs related to distribution mains. Much of CIAC and CAC is related to the construction of distribution mains. Therefore, allocating this item using Factor 4 is appropriate.
- b. The Company does not have records showing the source by customer class of the CIAC and CAC acquired from Citizens. The number of customers by customer class acquired from Citizens is shown below:

Class	Number of Customers
Residential	33,893
Commercial	2,376
Industrial	166
Private Fire	334
Public Fire	31

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 8

OCA-08-004

Responsible Witness: Constance E. Heppenstall, Senior Project Manager of Gannett Fleming

Question:

Reference: PAWC Exh. 12-A, p. 14 (line for Other Water Revenues - Late Payment Fees). Please provide a workpaper showing actual late payment fees billed by customer class for the historic test year and the future test year to date.

Response:

Please refer to OCA-08-004_Attachment for the Water Excluding Steelton actual late payment fees by bill class for years 2019 and 2020 through May. The Company discontinued charging late payment fees due to the Covid-19 Pandemic as of 3/16/2020 until further notice.

Pennsylvania-American Water Company Docket
No. R-2020-3019369
OCA VIII-4

Water Excluding Steelton - Late Payment Fees

Class	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	2019 Total
Residential	\$277,764	\$275,893	\$287,787	\$244,822	\$227,656	\$240,906	\$243,355	\$252,481	\$257,008	\$236,710	\$245,887	\$324,278	\$3,114,547
Commercial	51,906	44,840	43,368	43,362	40,990	36,889	43,201	46,041	47,629	51,244	44,455	45,416	539,341
Industrial	3,844	2,084	5,375	3,946	2,438	1,870	3,751	1,473	4,856	3,258	4,684	3,737	41,316
OPA	6,670	7,846	3,411	(581)	2,238	3,538	6,314	5,638	7,716	6,760	2,394	2,116	54,060
Sale for Resale	1,527	20	572	158	2	20	212	211	244	0	0	781	3,747
Fire	3,443	3,258	3,789	3,012	1,884	1,916	2,532	3,575	2,691	3,071	3,678	3,937	36,786
Total Water Excluding Steelton	\$345,154	\$333,941	\$344,302	\$294,719	\$275,208	\$285,139	\$299,365	\$309,419	\$320,144	\$301,043	\$301,098	\$380,265	\$3,789,797

Class	Jan-20	Feb-20	Mar-20	Apr-20	May-20
Residential	\$275,370	\$289,174	\$169,082	(\$2,066)	(\$906)
Commercial	51,856	48,386	26,226	(330)	680
Industrial	5,311	6,763	1,075	0	1,132
OPA	5,925	3,851	1,072	0	(19)
Sale for Resale	704	484	0	0	0
Fire	7,206	7,381	3,168	(8)	(20)
Total Water Excluding Steelton	\$346,372	\$356,039	\$200,622	(\$2,404)	\$867

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 8

OCA-08-006

Responsible Witness: Constance E. Heppenstall, Senior Project Manager of Gannett Fleming

Question:

Reference: PAWC Exh. 12-A, p. 14 (line for Other Water Revenues - Rents from Other Properties). Please describe the revenues in this category and explain why they are allocated using factor 16.

Response:

Rents from other properties includes money from cellular phone providers for the lease of space on top of the Company's towers for the placement of antennas.

This revenue should be allocated based on total cost of service or Factor 20, not Factor 16, as all classes benefit from these revenues. This change in allocation causes a de minimis change in the results of the cost of service for the residential class (0.01% increase to the cost of service for the residential class).

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 8

OCA-08-009

Responsible Witness: Constance E. Heppenstall, Senior Project Manager of Gannett Fleming

Question:

Reference: PAWC Exh. 12-A, pp. 29-30. Please explain why there are approximately 8,200 more residential meters than service lines.

Response:

There are approximately 8,200 more residential meters than service lines because certain residential customers have a shared service line or two customers per service line. Therefore, the number of service lines are reduced by 8,200 to account for the shared lines. In addition, there are 474 commercial customers that also have shared service lines.

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 8

OCA-08-010

Responsible Witness: Constance E. Heppenstall, Senior Project Manager of Gannett Fleming

Question:

Reference: PAWC Exh. 12-A, p. 36. Should account 311.54 (Pumping equipment T&D rate base) be allocated using factor 8 (mains), rather than factor 6 (water treatment operations)? If not, please explain why depreciation expense for the same account (on p. 13) is allocated using factor 8.

Response:

Yes, Account 311.54 (Pumping equipment T&D rate base) should be allocated on Factor 8, rather than Factor 6. This change in allocation results in a de minimis change in the results of the cost of service for the residential class (0.01% increase to the cost of service for the residential class).

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
OCA Set 8

OCA-08-012

Responsible Witness: Rod P. Nevirauskas, Senior Director of Rates and Regulatory for PAWC

Question:

Reference: Proposed Water Tariff (redlined), Third Revised Page 40, Original Page 40.1, and Original Page 40.2; Proposed Wastewater Tariff, Third Revised Page 19, Original Page 19.1 and Original Page 19.2 (Regionalization and Consolidation Surcharge).

- a. Why is the Company proposing to use operation and maintenance (O&M) expenses from its most recent annual report rather than from its most recent base rate case?
- b. If the proposed tariff were currently in effect, please provide a workpaper showing the calculation of the O&M expense per customer, along with the pages from the Company's 2019 annual report that are used in the calculation.
- c. Why is the Company proposing to exclude public fire protection customers from the surcharge?
- d. Why does the proposed wastewater tariff mention public fire protection?
- e. Please explain why the formula and description for the Regionalization and Consolidation Surcharge (RCS) do not subtract revenues received from the acquired system, and how the calculation represents a "revenue deficiency" when there does not appear to be a comparison of costs to revenues.
- f. Please explain how the Company will determine "netted revenue from any customers which will be gained or lost by the beginning of the applicable service period" as described in the calculation of Projected Annual Revenues (PAR).
- g. The description of PAR refers to revenues "from existing water and wastewater customers." Is it the Company's intention to apply the same RCS percentage to water and wastewater customers, or to have separate RCSs for water and wastewater service?
- h. Please provide a sample calculation of the RCS (or the separate water and wastewater RCSs, if that is what the Company is proposing) assuming the following: acquisition of a water and sewer system with a water rate base of \$1 million consisting of \$500,000 in mains and appurtenances, \$200,000 in services, \$150,000 in treatment equipment,

\$50,000 in wells, and \$100,000 in meters; a sewer rate base of \$500,000 all of which is in collecting mains and appurtenances; and existing revenues of \$150,000 for water and \$150,000 for sewer. The calculation should use data from the Company's 2019 annual report for O&M and data from the 2021 test year as filed in this case for pre-tax return, depreciation, sales, and revenues.

Response:

- A. The resolution of the Company's prior base rate cases did not include a specified level of O&M expense. The expenses recorded in the Company's Annual Reports is proposed in order to use actual historical costs to calculate the expense.
- B. Please refer to OCA-08-12_Attachment_1 for the requested information and workpaper.
- C. Public fire protection customers are excluded due to the requirement to limit public fire rates to 25% of cost of service.
- D. The reference to public fire service in the wastewater tariff is an error. Please refer to the corrected language in OCA-08-012_Attachment_2.
- E. Please refer to OCA-08-012_Attachment_2 for a revision to the proposed tariff clarifying the revenue deficiency calculation.
- F. The Company will follow the procedures set forth in OCA-08-012_Attachment_2. The Company uses the same methodology to project monthly revenues for the purpose of calculating its DSIC surcharge. These projections reflect customers projected to be gained or lost during the service period.
- G. It is the Company's intention to apply the same RCS percentage to water and wastewater customers.
- H. Please refer to OCA-08-012_Attachment 3 for the requested sample calculation using the hypothetical scenario provided.

400. COMPARATIVE INCOME STATEMENT REVENUES AND EXPENSES

Line No.	Account Number and Title (a)	Schedule No. (c)	Balance End of of Year (d)	Balance Previous Year (e)	Increase/ Decrease (f)
1	400.0 Operating Revenues	401	626,143,871	627,983,582	(1,839,711)
2					
3	UTILITY OPERATING EXPENSES		XXX	XXX	XXX
4	401.0 Operating Expenses		197,989,719	190,125,354	7,864,365
5	403.0 Depreciation Expense		120,300,794	109,739,806	10,560,988
6	406.0 Amortization of Utility Plant Acquisition Adjustment	417	583,732	583,732	
7	407.1 Amortization of Limited Term Plant	417	203,790	186,338	17,452
8	407.2 Amortization of Property Losses	417			
9	407.3 Amortization of Other Utility Plant	417			
10	407.4 Amortization of Regulatory Assets		167,280	167,280	
11	408.0 Taxes Other Than Income	418	4,954,505	10,418,547	(5,464,042)
12	409.10 Federal Income Taxes, Utility Operating Income	419	7,096,481	16,461,132	(9,364,651)
13	409.11 State Income Taxes, Utility Operating Income	419	4,538,897	12,489,734	(7,950,837)
14	409.12 Local Income Taxes, Utility Operating Income				
15	410.0 Deferred Income Tax	420			
16	410.10 Federal	420	42,396,916	35,449,854	6,947,062
17	410.11 State	420	16,464,372	12,402,575	4,061,797
18	Total Deferred Income Tax	420	58,861,288	47,852,429	11,008,859
19	411.1 Provision for Deferred Income Taxes				
	- Credit, Utility Operating Income	421			
20	Tax Credits				
21	412.1 Investment Tax Credit, Deferred to Future Periods, Utility Operating Income		(233,592)	(233,592)	
22	412.2 Investment Tax Credits, Restored to Operating Income, Utility Operating Income				
23	Total Tax Credits		(233,592)	(233,592)	
24	TOTAL UTILITY OPERATING EXPENSES		394,462,894	387,790,760	6,672,134
25					
26	NET UTILITY OPERATING INCOME (LOSS)		231,680,977	240,192,822	(8,511,845)
27					
28	OTHER OPERATING INCOME (LOSS)		XXX	XXX	XXX
29	413.0 Income from Utility Plant Leased to Others				
30	414.0 Gains (Losses) from Disposition of Utility Property				
31	TOTAL OTHER OPERATING INCOME (LOSS)				
32					
33	NON-OPERATING INCOME		XXX	XXX	XXX
34	415.0 Revenues from Merchandising, Jobbing and Contract Work				
35	419.0 Interest & Dividend Income		2,583	1,229	1,354
36	420.0 Allowance for Funds Used During Construction (AFUDC)		3,114,234	5,657,764	(2,543,530)
37	421.0 Non-Utility Income		169	60,596	(60,427)
38	TOTAL NON-OPERATING INCOME		3,116,986	5,719,589	(2,602,603)
39					
40	NON-OPERATING DEDUCTIONS		XXX	XXX	XXX
41	408.2 Taxes Other Than Income, Other Income and Deductions		(2,098,449)	(1,760,379)	(338,070)
42	409.2 Income Taxes, Other Income and Deductions		(675,191)	260,340	(935,531)
43	416.0 Costs & Expenses of Merchandising, Jobbing and Contract Work		20,143	1,616	18,527
44	426.0 Miscellaneous Non-Utility Expenses		7,437,410	(711,146)	8,148,556
45	TOTAL NON-OPERATING INCOME & DEDUCTIONS		7,800,899	3,510,020	4,290,879
46					
47	INTEREST EXPENSE		XXX	XXX	XXX
48	427.0 Interest Expense		78,043,022	77,448,150	594,872
49	428.0 Amortization of Debt Discount & Expenses		1,447,298	1,548,269	(100,971)
50	429.0 Amortization of Premium on Debt				
51	TOTAL INTEREST EXPENSE		79,490,320	78,996,419	493,901
52					
53	EXTRAORDINARY ITEMS		XXX	XXX	XXX
54	433.0 Income				
55	434.0 Deductions				
56	409.3 Income Taxes				
57	409.4 Other				
58	TOTAL EXTRAORDINARY ITEMS				
59	NET INCOME (LOSS)		159,991,556	164,706,423	(4,714,867)

402. OPERATING REVENUES SUPPORTING SCHEDULE - CUSTOMER DATA

Customers should be reported on the basis of number of meters, (except where multiple customers have one meter) plus number of flat rate accounts. Where separate meter readings are added for billing purposes, one customer shall be counted for each group of meters so added.

Line No.	Customer Classes (a)	Customers End of Current Year (b)	Customers End of Previous Year (c)
1	Unmetered Sales	XXX	XXX
2	Residential	134	134
3	Commercial		
4	Industrial		
5	Public		
6	Other		
7	Public Fire		
8	Private Fire		
9	Total Unmetered Sales	134	134
10			
11	Metered Sales	XXX	XXX
12	Residential	613,326	607,813
13	Commercial	45,325	45,022
14	Industrial	532	523
15	Public	2,198	2,234
16	Multiple Family Dwellings		
17	Other		
18	Private Fire	3,882	3,880
19	Public Fire	410	409
20	Sales for Resale	22	23
21	Total Metered Sales	665,695	659,904

400. COMPARATIVE INCOME STATEMENT REVENUES AND EXPENSES

Line No.	Account Number and Title (a)	Schedule No. (c)	Balance End of Year (d)	Balance Previous Year (e)	Increase/ Decrease (f)
1	400.0 OPERATING REVENUES	401	62,985,131	61,231,232	1,753,899
2					
3	UTILITY OPERATING EXPENSES		XXX	XXX	XXX
4	401.0 Operating Expenses		22,226,872	22,573,190	(346,318)
5	403.0 Depreciation Expense		14,700,967	13,630,677	1,070,290
6	406.0 Amortization of Utility Plant Acquisition Adjustment	417			
7	407.1 Amortization of Limited Term Plant	417			
8	407.2 Amortization of Property Losses	417			
9	407.3 Amortization of Other Utility Plant	417			
10	407.4 Amortization of Regulatory Assets		-	42,065	(42,065)
11	407.5 Amortization of Regulatory Liabilities				
12	408.0 Taxes Other Than Income	418-419	627,983	667,031	(39,048)
13	409.10 Federal Income Taxes, Utility Operating Income	418-419			
14	409.11 State Income Taxes, Utility Operating Income	418-419			
15	409.12 Local Income Taxes, Utility Operating Income	418-419			
16	410.0 Deferred Income Tax	418-419			
17	410.10 Federal	419			
18	410.11 State	419			
19	Total Deferred Income Tax	419			
20	411.10 Provision for Deferred Income Taxes-Credit Utility Opr. Income	419			
21	412.10 Investment Tax Credits Deferred to Future Periods, Utility Operations	419			
22	412.11 Investment Tax Credits Restored to Opr., Income, Utility Opr. Income	419			
23	Total Tax Credits				
24	413.0 Income from Utility Plant Leased to Others				
25	414.0 Gains (Losses) from Disposition of Utility Property				
26	TOTAL UTILITY OPERATING EXPENSES		37,555,822	36,912,963	642,859
27	NET UTILITY OPERATING INCOME (LOSS)		25,429,309	24,318,269	1,111,040
28					
29	OTHER INCOME AND DEDUCTIONS		XXX	XXX	XXX
30	415.0 Revenues from Merchandising, Jobbing and Contract Work		115		115
31	416.0 Costs & Expenses of Merchandising, Jobbing and Contract Work				
32	419.0 Interest & Dividend Income				
33	420.0 Allowance for Funds Used During Construction (AFUDC)		(1,753,253)	(564,691)	(1,188,562)
34	426.0 Miscellaneous Non-Utility Expenses				-
35	TOTAL OTHER UTILITY INCOME AND DEDUCTIONS		1,753,368	564,691	1,188,677
36	TAXES APPLICABLE TO OTHER INCOME AND DEDUCTIONS		XXX	XXX	XXX
37	408.2 Taxes Other Than Income, Other Income and Deductions	418			
38	409.2 Income Taxes, Other Income and Deductions	418			
39	410.2 Provision for Deferred Income Taxes-Other Income & Deductions	419			
40	411.2 Provision for Deferred Income Taxes-Credit, Other Income & Deductions	419			
41	412.2 Investment Tax Credit-Net, Nonutility Operations	419			
42	412.3 Investment Tax Credits Restored to Nonoperating Income, Utility Opr.	419			
43	TOTAL TAXES APPLICABLE TO OTR. INCOME & DEDUCTIONS				
44	INTEREST EXPENSE		XXX	XXX	XXX
45	427.0 Interest Expense				
46	427.1 Interest on Debt to Associated Companies				
47	427.2 Interest on Short-Term Debt				
48	427.3 Interest on Long-Term Debt				
49	427.4 Interest on Customer Deposits				
50	427.5 Interest-Other		76,537	63,262	13,275
51	428.0 Amortization of Debt Discount & Expenses				-
52	429.0 Amortization of Premium on Debt				-
53	TOTAL INTEREST EXPENSE		76,537	63,262	13,275
54	EXTRAORDINARY ITEMS		XXX	XXX	XXX
55	433.0 Income				
56	434.0 Deductions				
57	409.3 Income Taxes				
58	TOTAL EXTRAORDINARY ITEMS				
	NET INCOME (LOSS)		27,106,140	24,819,698	2,286,442

402. OPERATING REVENUES SUPPORTING SCHEDULE - CUSTOMER DATA

Customers should be reported on the basis of number of meters, (except where multiple customers have one meter) plus number of flat rate accounts. Where separate meter readings are added for billing purposes, one customer shall be counted for each group of meters so added.

Line No.	Customer Classes (a)	Customers End of Current Year (b)	Customers End of Previous Year (c)	Increase/ (Decrease) (d)
1	Unmetered Charges	XXX	XXX	XXX
2	Residential	1,353	996	357
3	Commercial	29	26	3
4	Industrial	2	4	(2)
5	Public Authorities	4	4	-
6	Multiple Family Dwellings*			
7	Availability			
8	Other			
9				
10	Total Unmetered Charges	1,388	1,030	358
11				
12	Measured Sales	XXX	XXX	XXX
13	Residential	67,520	58,929	8,591
14	Commercial	5,202	4,856	346
15	Industrial	42	29	13
16	Public Authority	192	182	10
17	Multiple Family Dwellings*			
18	Other	10	11	(1)
19	Other Systems			
20	Interdepartmental			
21	Other Systems-Interdepartmental			
22				
23	Total Measured Sales	72,966	64,007	8,959

* Use number of Individual Dwelling Units

Average O&M and Taxes Other Than Income Expense per Customer

	<u>Water</u>	<u>Wastewater</u>
1 Operating Expenses	\$197,989,719	\$22,226,872
2 Taxes Other Than Income	\$4,954,505	\$627,983
3 Total	\$202,944,224	\$22,854,855
4 Number of Customers	665,695	72,966
5 Average Cost per Customer	\$304.86	\$313.23

Regionalization and Consolidation Surcharge

Proposed Water Tariff

OCA-08-012_Attachment_2

SCHEDULE OF RATES

REGIONALIZATION AND CONSOLIDATION SURCHARGE

(C)

1. General Description

Purpose: To recover the revenue deficiency created by the acquisition of water and wastewater utilities acquired at their fair market value pursuant to 66 Pa. C.S. § 1329 in order to further the regionalization and consolidation of water and wastewater systems throughout the Commonwealth.

Effective Date: The RCS will become effective for bills rendered on and after [date].

2. Computation of the RCS

Calculation: The RCS will be updated annually to reflect eligible acquisitions closed during the twelve-month period ending three months prior to the effective date of each RCS update. Thus, changes in the RCS rate will occur as follows:

Effective Date
of Change
April 1

Date to which RCS-Eligible
Acquisitions Reflected
December 31

The revenue deficiency of eligible fair market value acquisitions will consist of depreciation, pre-tax return, operation and maintenance expenses, including taxes other than income, less revenues at present rates from the acquired system, calculated as follows:

Depreciation: The depreciation expense will be calculated by applying to the Commission-approved cost of RCS-eligible property the annual accrual rates employed in the Company's last base rate case for the plant accounts in which each retirement unit of RCS-eligible property is recorded, unless the Commission approves different depreciation rates.

Pre-tax return: The pre-tax return will be calculated using the state and federal income tax rates, the Company's actual capital structure and actual cost rates for long-term debt and preferred stock as of the last day for the period ending three months prior to the effective date of the RCS and subsequent updates. The cost of equity will be the equity return rate approved in the Company's last fully litigated base rate proceeding for which a final order was entered not more than two years prior to the effective date of the RCS. If more than two years shall have elapsed between the entry of such a final order and the effective date of the RCS, then the equity return rate used in the calculation will be the equity return rate calculated by the Commission Staff in the latest Quarterly Report on the Earnings of Jurisdictional Utilities released by the Commission.

Operation and Maintenance Expenses: The operation and maintenance (O&M) expenses will be determined by multiplying the Company's current per-customer O&M expense by the number of customers of the acquired system. The Company's current per-customer O&M expense will be determined by dividing the Company's total O&M expenses by the Company's total number of customers, both as shown in the most recent Annual Report to the Commission.

(C) means Change

PENNSYLVANIA-AMERICAN WATER COMPANY

SCHEDULE OF RATES

REGIONALIZATION AND CONSOLIDATION SURCHARGE (CONT'D)

2. Computation of the RCS (cont'd)

RCS Amount: The RCS will be expressed as a percentage carried to two decimal places and will be applied to the total amount billed to each customer for service under the Company's otherwise applicable rates and charges, excluding amounts billed for public fire protection service, the State Tax Adjustment Surcharge (STAS), and the Distribution System Improvement Charge (DSIC). To calculate the RCS, the annual acquisition-related revenue requirement deficiency will be divided by the Company's projected revenue for sales of water and wastewater (including all applicable clauses and riders) for the annual period during which the charge will be collected, exclusive of revenues from customers acquired under 66 Pa. C.S. § 1329 since the last base rate case, public fire protection service, the STAS and the DSIC.

Formula: The formula for calculation of the RCS surcharge is as follows:

$$\text{RCS} = \frac{((\text{RMRB} * \text{PTRR}) + \text{Dep} + \text{O\&M} - \text{Year 1 Revenues of Acquired System})}{\text{PAR}} + \frac{e}{\text{PAR}}$$

Where:

RMRB = The ratemaking rate base as established in the 66 Pa. C.S. § 1329 proceeding, net of accumulated depreciation since acquisition.

PTRR = Pre-tax return rate applicable to RCS-eligible property.

Dep = Depreciation expense related to RCS-eligible property.

O&M = Operation and maintenance expenses including taxes other than income.

e = Amount calculated (+/-) under the annual reconciliation feature or Commission Audit as described below.

PAR = Projected annual revenues for service (including all applicable clauses and riders) from existing water and wastewater customers plus netted revenue from any customers which will be gained or lost by the beginning of the applicable service period, will be based on the applicable twelve-month period, including any revenue from acquired companies that are now being charged the rates of the acquiring company, and excluding any revenue from systems acquired pursuant to 66 Pa. C.S. §1329 since the Company's last base rate case.

Annual Updates: Supporting data for each annual update will be filed with the Commission and served upon the Bureau of Investigation and Enforcement, the Office of Consumer Advocate and the Office of Small Business Advocate at least sixty (60) days prior to the effective date of the update.

3. Safeguards

Cap: The RCS will be capped at 5.00% of the amount billed to water and wastewater customers under otherwise applicable rates and charges.

PENNSYLVANIA-AMERICAN WATER COMPANY

SCHEDULE OF RATES

REGIONALIZATION AND CONSOLIDATION SURCHARGE (CONT'D)

3. Safeguards, cont'd

Audit/Reconciliation: The RCS will be subject to audit at intervals determined by the Commission. Any cost determined by the Commission not to comply with this tariff shall be credited to applicable customer accounts. It will also be subject to annual reconciliation based on a reconciliation period consisting of the twelve months ending December 31 of each year or the Company may elect to subject the RCS to quarterly reconciliation but only upon request and approval by the Commission. The revenue received under the RCS for the reconciliation period will be compared to the Company's eligible costs for that period. The difference between revenue and costs will be recouped or refunded, as appropriate, in accordance with Section 1307 (e), over a one-year period commencing April 1 of each year, or in the next quarter if permitted by the Commission. If RCS revenues exceed RCS-eligible costs, such over-collections will be refunded with interest. Interest on the over-collections and credits will be calculated at the residential mortgage lending specified by the Secretary of Banking in accordance with the Loan Interest and Protection Law (41 P.S. § 101, et seq.) and will be refunded in the same manner as an over-collection. The Company is not permitted to accrue interest on under collections.

New Base Rates: The RCS charge will be reset at zero upon application of new base rates to customer billings that provide for prospective recovery of the annual costs that had theretofore been recovered under the RCS. Thereafter, only the revenue requirement deficiency of new eligible acquisitions, that have not previously been reflected in the Company's rate base, would be reflected in the annual updates of the RCS.

All Customer Classes: The RCS shall be applied equally to all customer classes exclusive of customers acquired under 66 Pa. C.S. § 1329 since the Company's last base rate proceeding.

Earning Reports: The charge will also be reset at zero if, at the time of the annual update, the data filed with the Commission in the Company's then most recent Annual or Quarterly Earnings reports show that the Company will earn a rate of return that would exceed the allowable rate of return used to calculate its revenue requirement deficiency under the RCS as described in the Pre-tax return section. The Company shall file a tariff supplement implementing the reset of the RCS to zero due to overearning on one-days' notice and such supplement shall be filed simultaneously with the filing of the most recent Annual or Quarterly Earnings reports indicating that the Company has earned a rate of return that would exceed the allowable rate of return used to calculate its revenue requirement deficiency.

Customer Notice: Customers shall be notified of changes in the RCS by including appropriate information on the first bill they receive following any change. An explanatory bill insert shall also be included with the first billing.

Residual E-Factor Recovery Upon Reset to Zero: The Company shall file with the Commission interim rate revisions to resolve the residual over/under collection or E-factor amount after the RCS rate has been reset to zero. The Company can collect or credit the residual over/under collection balance when the RCS rate is reset to zero. The utility shall refund any over collection to customers and is entitled to recover any under collections as set forth in Section 3 – Audit Reconciliation. Once the Company determines the specific amount of the residual over or under collection amount after the RCS rate is reset to zero, the Company shall file a tariff supplement with supporting data to address that residual amount. The tariff supplement shall be served upon the Commission's Bureau of Investigation and Enforcement, the Commission's Bureau of Audits, the Office of Consumer Advocate, and the Office of Small Business Advocate at least ten (60) days prior to the effective date of the supplement.

Public Fire Protection: The RCS will not apply to public fire protection customers.

Regionalization and Consolidation Surcharge

Proposed Wastewater Tariff

OCA-08-012_Attachment_2

SCHEDULE OF RATES

REGIONALIZATION AND CONSOLIDATION SURCHARGE

(C)

1. General Description

Purpose: To recover the revenue deficiency created by the acquisition of water and wastewater utilities acquired at their fair market value pursuant to 66 Pa. C.S. § 1329 in order to further the regionalization and consolidation of water and wastewater systems throughout the Commonwealth.

Effective Date: The RCS will become effective for bills rendered on and after [date].

2. Computation of the RCS

Calculation: The RCS will be updated annually to reflect eligible acquisitions closed during the twelve-month period ending three months prior to the effective date of each RCS update. Thus, changes in the RCS rate will occur as follows:

<u>Effective Date of Change</u>	<u>Date to which RCS-Eligible Acquisitions Reflected</u>
April 1	December 31

The revenue deficiency of eligible fair market value acquisitions will consist of depreciation, pre-tax return, operation and maintenance expenses, including taxes other than income, less revenues at present rates from the acquired system, calculated as follows:

Depreciation: The depreciation expense will be calculated by applying to the Commission-approved cost of RCS-eligible property the annual accrual rates employed in the Company's last base rate case for the plant accounts in which each retirement unit of RCS-eligible property is recorded, unless the Commission approves different depreciation rates.

Pre-tax return: The pre-tax return will be calculated using the state and federal income tax rates, the Company's actual capital structure and actual cost rates for long-term debt and preferred stock as of the last day for the period ending three months prior to the effective date of the RCS and subsequent updates. The cost of equity will be the equity return rate approved in the Company's last fully litigated base rate proceeding for which a final order was entered not more than two years prior to the effective date of the RCS. If more than two years shall have elapsed between the entry of such a final order and the effective date of the RCS, then the equity return rate used in the calculation will be the equity return rate calculated by the Commission Staff in the latest Quarterly Report on the Earnings of Jurisdictional Utilities released by the Commission.

Operation and Maintenance Expenses: The operation and maintenance (O&M) expenses will be determined by multiplying the Company's current per-customer O&M expense by the number of customers of the acquired system. The Company's current per-customer O&M expense will be determined by dividing the Company's total O&M expenses by the Company's total number of customers, both as shown in the most recent Annual Report to the Commission.

(C) means Change

PENNSYLVANIA-AMERICAN WATER COMPANY

SCHEDULE OF RATES

REGIONALIZATION AND CONSOLIDATION SURCHARGE (CONT'D)

2. Computation of the RCS (cont'd)

RCS Amount: The RCS will be expressed as a percentage carried to two decimal places and will be applied to the total amount billed to each customer for service under the Company's otherwise applicable rates and charges, excluding amounts billed for ~~public fire protection service~~, the State Tax Adjustment Surcharge (STAS), and the Distribution System Improvement Charge (DSIC). To calculate the RCS, the annual acquisition-related revenue requirement deficiency will be divided by the Company's projected revenue for sales of water and wastewater (including all applicable clauses and riders) for the annual period during which the charge will be collected, exclusive of revenues from customers acquired under 66 Pa. C.S. § 1329 since the last base rate case, ~~public fire protection service~~, the STAS and the DSIC.

Formula: The formula for calculation of the RCS surcharge is as follows:

$$\text{RCS} = \frac{((\text{RMRB} * \text{PTRR}) + \text{Dep} + \text{O\&M} - \text{Year 1 Revenues of Acquired System})}{\text{PAR}} + \frac{e}{\text{PAR}}$$

Where:

RMRB = The ratemaking rate base as established in the 66 Pa. C.S. § 1329 proceeding, net of accumulated depreciation since acquisition.

PTRR = Pre-tax return rate applicable to RCS-eligible property.

Dep = Depreciation expense related to RCS-eligible property.

O&M = Operation and maintenance expenses including taxes other than income.

e = Amount calculated (+/-) under the annual reconciliation feature or Commission Audit as described below.

PAR = Projected annual revenues for service (including all applicable clauses and riders) from existing water and wastewater customers plus netted revenue from any customers which will be gained or lost by the beginning of the applicable service period, will be based on the applicable twelve-month period, including any revenue from acquired companies that are now being charged the rates of the acquiring company, and excluding any revenue from systems acquired pursuant to 66 Pa. C.S. §1329 since the Company's last base rate case.

Annual Updates: Supporting data for each annual update will be filed with the Commission and served upon the Bureau of Investigation and Enforcement, the Office of Consumer Advocate and the Office of Small Business Advocate at least sixty (60) days prior to the effective date of the update.

3. Safeguards

Cap: The RCS will be capped at 5.00% of the amount billed to water and wastewater customers under otherwise applicable rates and charges.

SCHEDULE OF RATES
REGIONALIZATION AND CONSOLIDATION SURCHARGE (CONT'D)

3. Safeguards, cont'd

Audit/Reconciliation: The RCS will be subject to audit at intervals determined by the Commission. Any cost determined by the Commission not to comply with this tariff shall be credited to applicable customer accounts. It will also be subject to annual reconciliation based on a reconciliation period consisting of the twelve months ending December 31 of each year or the Company may elect to subject the RCS to quarterly reconciliation but only upon request and approval by the Commission. The revenue received under the RCS for the reconciliation period will be compared to the Company's eligible costs for that period. The difference between revenue and costs will be recouped or refunded, as appropriate, in accordance with Section 1307 (e), over a one-year period commencing April 1 of each year, or in the next quarter if permitted by the Commission. If RCS revenues exceed RCS-eligible costs, such over-collections will be refunded with interest. Interest on the over-collections and credits will be calculated at the residential mortgage lending specified by the Secretary of Banking in accordance with the Loan Interest and Protection Law (41 P.S. § 101, et seq.) and will be refunded in the same manner as an over-collection. The Company is not permitted to accrue interest on under collections.

New Base Rates: The RCS charge will be reset at zero upon application of new base rates to customer billings that provide for prospective recovery of the annual costs that had theretofore been recovered under the RCS. Thereafter, only the revenue requirement deficiency of new eligible acquisitions, that have not previously been reflected in the Company's rate base, would be reflected in the annual updates of the RCS.

All Customer Classes: The RCS shall be applied equally to all customer classes exclusive of customers acquired under 66 Pa. C.S. § 1329 since the Company's last base rate proceeding.

Earning Reports: The charge will also be reset at zero if, at the time of the annual update, the data filed with the Commission in the Company's then most recent Annual or Quarterly Earnings reports show that the Company will earn a rate of return that would exceed the allowable rate of return used to calculate its revenue requirement deficiency under the RCS as described in the Pre-tax return section. The Company shall file a tariff supplement implementing the reset of the RCS to zero due to overearning on one-days' notice and such supplement shall be filed simultaneously with the filing of the most recent Annual or Quarterly Earnings reports indicating that the Company has earned a rate of return that would exceed the allowable rate of return used to calculate its revenue requirement deficiency.

Customer Notice: Customers shall be notified of changes in the RCS by including appropriate information on the first bill they receive following any change. An explanatory bill insert shall also be included with the first billing.

Residual E-Factor Recovery Upon Reset to Zero: The Company shall file with the Commission interim rate revisions to resolve the residual over/under collection or E-factor amount after the RCS rate has been reset to zero. The Company can collect or credit the residual over/under collection balance when the RCS rate is reset to zero. The utility shall refund any over collection to customers and is entitled to recover any under collections as set forth in Section 3 – Audit Reconciliation. Once the Company determines the specific amount of the residual over or under collection amount after the RCS rate is reset to zero, the Company shall file a tariff supplement with supporting data to address that residual amount. The tariff supplement shall be served upon the Commission's Bureau of Investigation and Enforcement, the Commission's Bureau of Audits, the Office of Consumer Advocate, and the Office of Small Business Advocate at least ten (60) days prior to the effective date of the supplement.

~~Public Fire Protection:~~ The RCS will not apply to public fire protection customers.

Pennsylvania American Water Company
OCA-08-012 Sample RCS Calculation

	<u>Amount</u>	<u>Reference</u>
1 Rate Base	\$ 1,500,000	OCA-08-012
2 Pre-Tax Rate of Return %	10.37%	Page 2 of 5
3 Pre-tax Return	<hr/> 155,550	Line 1 x Line 2
4 O&M - Water	76,215	Page 3 of 5
5 O&M - Wastewater	78,308	Page 3 of 5
6 Depreciation - Water	40,130	Page 4 of 5
7 Depreciation - Wastewater	16,400	Page 4 of 5
9 Revenue Requirement	<div style="border: 1px solid black; display: inline-block; padding: 2px;">366,603</div>	Sum of lines 3 - 8
10 Acquired System Year-1 Revenues	300,000	OCA-08-012
11 Revenue Deficiency	66,603	Line 9 - Line 10
12 Proposed Water and Wastewater Sales Revenues Less Public Fire	783,484,747	Page 5 of 5
13 Surcharge Percentage	0.01%	Line 11 / Line 12

Summary

Wastewater	Capital Structure	Cost Rate	Weighted Cost	Revenue Multiplier	Revenue Requirement
Long-Term Debt	44.79%	4.40%	1.97%		1.97%
Preferred Stock	0.06%	8.80%	0.01%	1.40631	0.01%
Common Equity	55.15%	10.80%	5.96%	1.40631	8.38%
			7.94%		10.37%

Capital Structure and Cost Rates: reference PAWC Statement No. 1, Schedule RPN-1.

Revenue Multiplier

Statutory State Tax Rate	0.0999
Statutory Federal Tax Rate	0.21
1- State Tax Rate	0.9001
Fed Rate Times (1-State Tax Rate)	0.189021
Effective Tax Rate	0.288921
1-Eff Tax Rate	0.711079
Reciprocal	1.40631

Pennsylvania American Water Company

OCA-08-012 Sample RCS Calculation - Average O&M and Taxes Other Than Income Expense per Customer

Refer to OCA-08-012-Attachment_1

	Water	Wastewater
1 Operating Expenses	\$197,989,719	\$22,226,872
2 Taxes Other Than Income	\$4,954,505	\$627,983
3 Total	\$202,944,224	\$22,854,855
4 Number of Customers	665,695	72,966
5 Average Cost per Customer	\$304.86	\$313.23
Number of Customers [1]	250	250
Annual O&M Expense	\$76,215	\$78,308

Notes:

[1] The example provided in OCA-08-012 does not specify the number of customers to be acquired; however, the number of customers is necessary to complete the example. Thus, a hypothetical number of customers was used.

Pennsylvania American Water Company
OCA-08-012 Sample RCS Calculation - Depreciation Expense

Account	Description	Rate Base per OCA-08-012	UPIS [1]	Accum. Depr.	Annual Accrual Rate, Percent [2]	Depreciation Expense
Water Plant:						
331.00	Mains and appurtenances	500,000	1,000,000	500,000	1.20%	12,000
333.00	Services	200,000	400,000	200,000	1.66%	6,640
320.00	Treatment Equipment	150,000	300,000	150,000	2.91%	8,730
307.00	Wells	50,000	100,000	50,000	2.32%	2,320
334.00	Meters	100,000	200,000	100,000	5.22%	10,440
	Total	1,000,000				40,130
Wastewater Plant:						
[3]	Collection Sewers	500,000	1,000,000	500,000	1.64%	16,400

Notes:

[1] OCA-08-012 requests a sample calculation of the RCS using provided rate base amounts. Depreciation expense is calculated based on plant in service, not rate base (i.e., net plant in service). Accordingly, for purposes of this example, the rate base values provided in the interrogatory are assumed to represent 50% of the undepreciated value of the assets.

[2] Please refer to Exhibit No. 11-C for the 2021 Water Excluding Steelton depreciation study.

[2] The Company has both gravity and force collection sewers. For purposes of this example, a composite rate of force and gravity mains is used. Please refer to Exhibit No. 11-C for the 2022 Wastewater SSS Excl. Sadsbury and Exeter depreciation study.

		Original Cost	Annual Accrual	Rate
360.10	Collection Sewers - Force Mains	38,161,242	667,003	
361.10	Collection Sewers - Gravity Mains	99,296,641	1,585,213	
		137,457,883	2,252,216	1.64%

Pennsylvania American Water Company
OCA-08-012 Sample RCS Calculation - Proposed Revenues Summary

Revenues Summary

Refer to Exhibit No. 3-A, 2021 Revenues at Proposed Rates

	<u>Water/WW Sales</u>	<u>Public Fire</u>	<u>Applicable Rev.</u>
Water Excl	673,570,656	8,798,003	664,772,653
Steelton	5,156,043	41,500	5,114,543
WW SSS	32,510,852		32,510,852
Sadsbury	1,159,871		1,159,871
Exeter	14,086,200		14,086,200
Scranton	34,532,212		34,532,212
McKeesport	29,843,375		29,843,375
Kane	<u>1,465,041</u>		<u>1,465,041</u>
Total Company	792,324,250		783,484,747

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
Bureau of Investigation and Enforcement Interrogatories Set 1

I&E-RS-16-D

Responsible Witness: Ashley E. Everette, Director of Rates and Regulatory for PAWC

Question:

Reference PAWC Volume 19 Exhibit 12F showing the Scranton wastewater operations.

- A. Explain why the Company is not proposing to implement a stormwater fee in the Scranton wastewater operations.
- B. Has the Company studied implementing a stormwater fee? If yes, provide all studies and analysis done to establish a stormwater fee or rate in the Scranton Wastewater system.
- C. Does the Company's agree that recovering stormwater costs from the customer base (cost causers) that causes stormwater costs to be incurred is a more reasonable methodology that recovering stormwater cost in wastewater rates that are based upon water consumption? If not, explain why not.

Response:

A. Please refer to the response to part C below.

B. No, the Company has not studied implementing a stormwater fee.

C. In Pennsylvania-American Water's prior rate cases, the Commission has based wastewater charges on customers' water flows. The Company used this methodology in proposing its wastewater rates in this proceeding. PAWC provides stormwater service only through combined sewer systems. A combined sewer system is not made up of separate wastewater and stormwater elements, but is one system providing wastewater service. The commingled flow is considered "wastewater" under Section 102 of the Public Utility Code, as amended by Act 154 of 2016. As such, it is reasonable to continue recovering the cost of collecting and treating wastewater (including stormwater combined with wastewater) through rates that are based upon water consumption.

Pennsylvania-American Water Company
Docket Nos. R-2020-3019369 (Water)
R-2020-3019371 (Wastewater)
Bureau of Investigation and Enforcement Interrogatories Set 3

I&E-RS-23-D

Responsible Witness: Constance E. Heppenstall, Senior Project Manager of Gannett Fleming

Question:

Reconcile the 2021 total \$32,851,567 subsidy provided by the Water Operations (Excluding Steelton) shown on PAWC Volume 17 Exhibit 12A, page 14 with the \$32,743,486 (\$2,428,123 + \$4,059,372 + \$770,451, +\$8,457,047 + \$15,544,509 + \$1,483,984) total subsidy being provided to Wastewater Operations shown on PAWC Volumes 18 and 19.

Response:

The amount of subsidy included in Water Operations Excluding Steelton is the correct amount of subsidy. The difference in the amounts shown above is due to the 2021 cost of service study for Sadsbury, Exhibit 12-E, which did not include the full amount of costs that were allocated for wastewater treatment from the Wastewater Operations Excluding Sadsbury and Exeter of \$671,275. The original Exhibit 12-E shows \$563,193 but should be corrected to \$671,275 as shown in the cost of service for Wastewater Operations Excluding Sadsbury and Exeter, Exhibit 12-C, Schedule A. This change increases the 2021 subsidy needed for Sadsbury to \$878,532 from \$770,451. Attached as I&E-RS-23-D_Attachments 1 and 2 are the revised Exhibit 12-E in PDF and electronic format. These revised exhibits show the full subsidy needed for the Sadsbury SSS Wastewater Operations.

Also attached is a full summary of the subsidy provided by the Water Operations Excluding Steelton by wastewater operation and by class as I&E-RS-23-D_Attachment 3 that shows the full subsidy of \$32,851,567.

PENNSYLVANIA-AMERICAN WATER COMPANY

Mechanicsburg, Pennsylvania

SADSBURY WASTEWATER SSS OPERATIONS

REVISED WASTEWATER COST OF SERVICE

ALLOCATION STUDY

AS OF DECEMBER 31, 2021 (RATE YEAR 1)

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

Camp Hill, Pennsylvania

REVISED WASTEWATER COST OF SERVICE
ALLOCATION STUDY
AS OF DECEMBER 31, 2021

PENNSYLVANIA AMERICAN WATER COMPANY
SADSBURY WASTEWATER SSS OPERATIONS
COMPARISON OF COST OF SERVICE WITH REVENUES UNDER PRESENT AND PROPOSED RATES
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2021

Customer Classification (1)	Cost of Service		Revenues, Present Rates		Revenues, Proposed Rates		Proposed Increase	
	Amount (Schedule B) (2)	Percent (3)	Amount (4)	Percent (5)	Amount (6)	Percent (7)	Amount (8)	Percent Increase (9)
Residential	\$ 827,259	86.8%	\$ 880,025	86.9%	\$ 824,472	86.5%	\$ (55,553)	-6.3%
Non-Residential	125,353	13.2%	132,898	13.1%	128,141	13.5%	(4,757)	-3.6%
Total Sales	952,612	100.0%	1,012,922	100.0%	952,612	100.0%	(60,310)	-6.0%
Other Revenues	7,241		6,324		7,241		917	14.5%
COS Recovered from Water Rates	878,532						0	
Total	\$ 1,838,386		\$ 1,019,246		\$ 959,853		\$ (59,393)	-5.8%

PENNSYLVANIA-AMERICAN WATER COMPANY
SADSBURY WASTEWATER SSS OPERATIONS
DEVELOPMENT OF RATE OF RETURN BY CUSTOMER CLASSIFICATION
UNDER PRESENT RATES

ITEM (1)	COST OF SERVICE (2)	RESIDENTIAL (3)		NON-RESIDENTIAL (4)	
1. REVENUES FROM SALES	1,012,922	880,025		132,898	
2. OTHER REVENUES	6,324	5,531		793	
3. TOTAL OPERATING REVENUES	1,019,246	885,556		133,691	
4. LESS: OPERATING EXPENSES (NET OF COST OF SERVICE RECOVERED FROM WATER)	932,156	813,786		118,370	
5. RETURN AND INCOME TAXES	87,090	71,770		15,321	
6. LESS: TAXABLE EXCLUSIONS - ALLOCATED ON RATE BASE	167,065	145,251		21,814	
7. TAXABLE INCOME	(79,975)	(73,481)		(6,494)	
8. LESS: INCOME TAXES (TAX. INC.)	137,765	126,578		11,187	
9. NET RETURN (Line 5 - Line 8)	(50,675)	(54,809)		4,134	
10. ORIGINAL COSTS MEASURE OF VALUE	8,266,613	7,187,202		1,079,411	
11. RATE OF RETURN, PERCENT	(0.61)	(0.76)		0.38	
12. RELATIVE RATE OF RETURN	1.00	1.24		(0.62)	

PENNSYLVANIA-AMERICAN WATER COMPANY
SADSBURY WASTEWATER SSS OPERATIONS
DEVELOPMENT OF RATE OF RETURN BY CUSTOMER CLASSIFICATION
UNDER PROPOSED RATES

ITEM (1)	COST OF SERVICE (2)	RESIDENTIAL (3)		NON-RESIDENTIAL (4)	
1. REVENUES FROM SALES	952,612	824,472		128,141	
2. OTHER REVENUES	7,241	6,331		910	
3. TOTAL OPERATING REVENUES	959,853	830,802		129,051	
4. LESS: OPERATING EXPENSES (NET OF COST OF SERVICE RECOVERED FROM WATER)	163,486	141,228		22,258	
5. RETURN AND INCOME TAXES	796,367	689,574		106,793	
6. LESS: TAXABLE EXCLUSIONS - ALLOCATED ON RATE BASE	167,113	145,293		21,820	
7. TAXABLE INCOME	629,254	544,281		84,973	
8. LESS: INCOME TAXES (TAX. INC.)	179,678	155,415		24,263	
9. NET RETURN (Line 5 - Line 8)	616,689	534,159		82,530	
10. ORIGINAL COSTS MEASURE OF VALUE	8,266,613	7,187,244		1,079,369	
11. RATE OF RETURN, PERCENT	7.46	7.43		7.65	
12. RELATIVE RATE OF RETURN	1.00	1.00		1.02	

PENNSYLVANIA AMERICAN WATER COMPANY
SADS BURY WASTEWATER SSS OPERATIONS
COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2021,
ALLOCATED TO CUSTOMER CLASSES

Account (1)	Factor Ref. (2)	Cost of Service (3)	Residential (4)	Non-Residential (5)
OPERATION AND MAINTENANCE EXPENSES				
SEWAGE TREATMENT				
601.3 Salary and Wages	1	11,148	9,656	1,492
601.4 Salary and Wages	1	1,224	1,060	164
615.3 Purchased Power	1	8,545	7,402	1,143
TOTAL SEWAGE TREATMENT EXPENSE		20,917	18,118	2,799
COLLECTION				
601.5 Salary and Wages	2	1,250	1,095	155
601.6 Salary and Wages	2	1,837	1,609	228
615.5 Purchased Power	2	472	413	59
620.5 Materials and Supplies	2	2,400	2,102	298
636.5 Contract Services	2	0	0	0
642.5 Rental of Equipment	2	0	0	0
TOTAL T & D EXPENSE OPERATION		5,959	5,219	740
620.6 Materials and Supplies	2	0	0	0
636.6 Contract Services	2	0	0	0
675.6 Miscellaneous Maintenance Expense	2	0	0	0
675.5 Miscellaneous Operating Expense	2	0	0	0
TOTAL T & D EXPENSE - MAINTENANCE		0	0	0
TOTAL COLLECTION EXPENSE		5,959	5,219	740
CUSTOMER ACCOUNTS				
601.7 Salary and Wages	5	0	0	0
670.7 Bad Debts	5	14,064	13,516	548
675.7 Miscellaneous Expense	5	669	643	26

PENNSYLVANIA AMERICAN WATER COMPANY
SADS BURY WASTEWATER SSS OPERATIONS
COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2021,
ALLOCATED TO CUSTOMER CLASSES

Account (1)	Factor Ref. (2)	Cost of Service (3)	Residential (4)	Non-Residential (5)
TOTAL CUSTOMER ACCOUNTING EXPENSE		14,733	14,158	575
ADMINISTRATIVE AND GENERAL EXPENSES				
601.8 Salaries and Wages	10	3,611	3,289	322
603.8 Salaries of Officers	10	0	0	0
604.8 Employee Pension & Benefits	6	4,489	3,933	556
634.8 Contractual Services - Management				
Customer Related	5	7,861	7,554	307
Employee Related	6	2,229	1,953	276
Lab Testing	1	228	197	30
Other	10	18,825	17,144	1,681
636.8 Contractual Services	10	7,020	6,393	627
650.8 Transportation	10	4,254	3,874	380
656.8 Insurance Vehicles	10	451	411	40
657.8 Insurance	10	19,187	17,474	1,713
658.8 Advertising	10	3,070	2,796	274
659.8 Workers Compensation	6	5,067	4,440	627
666.8 Amortization of Rate Case	9	1,473	1,288	185
675.8 Miscellaneous Expense	10	14,499	13,204	1,295
TOTAL A & G EXPENSE		92,264	83,950	8,314
Total Operation & Maintenance Expenses		133,873	121,446	12,427
DEPRECIATION EXPENSE				
354.20 Structures and Improvements - Collection	2	0	0	0
354.30 Structures and Improvements -Pumping	2	6,549	5,736	813
355.00 Power Generation Equipment	2	1,877	1,644	233
360.10 Force Mains	3	3,034	2,628	406
361.10 Gravity Mains	3	113,065	97,936	15,128

PENNSYLVANIA AMERICAN WATER COMPANY
SADSBURY WASTEWATER SSS OPERATIONS
COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2021,
ALLOCATED TO CUSTOMER CLASSES

Account (1)	Factor Ref. (2)	Cost of Service (3)	Residential (4)	Non-Residential (5)
361.20 Manholes	3	29,342	25,416	3,926
363.00 Service Laterals	4	17,353	15,753	1,600
364.00 Flow Measuring Devices	2	10,780	9,442	1,338
371.00 Pumping Equipment	2	18,486	16,191	2,294
Total Depreciation Expense		200,483	174,746	25,737
Amortization Expense	8	27,024	23,495	3,529
Allocation of Treatment Costs	1	671,275	581,458	89,817
Taxes Other Than Income				
685100 Utility Reg Assessment Fee	9	6,723	5,878	845
685200 Property Taxes	8	1,119	972	146
685320 Payroll Taxes	6	1,523	1,334	189
Total Taxes, Other Than Income		9,365	8,185	1,180
Total Operating Expense		1,042,019	909,329	132,690
4091 Income Taxes	8	179,678	156,212	23,466
Utility Income Available for Return	8	616,689	536,149	80,540
Total Cost of Service		1,838,386	1,601,691	236,695
Less: Other Revenues	9	7,241	6,331	910
Less: Cost of Service Recovered from Water Rates	9	878,532	768,101	110,432
Less: Cost of Service Recovered from Water Rates - Penalties	9		0	0
Total Cost of Service Related to Sales of Wastewater Services		952,612	827,259	125,353

PENNSYLVANIA AMERICAN WATER COMPANY
SADBURY WASTEWATER SSS OPERATIONS
FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 1. ALLOCATION OF COSTS ASSOCIATED WITH WASTEWATER TREATMENT

Factors are based on the pro forma test year average daily consumption for each customer classification with adjustments. The detail regarding calculation of adjusted flows can be found on the following page.

Classification (1)	Total Adjusted Average Daily Customer Flow 100 gallons (a) (2)	I&I Gallons Per Day 100 gallons (b) (3)	Total I&I And Average Flow (4)=(2)+(3)	Allocation Factor (7)
Residential	1,055	1,187	2,242	0.8662
Non-Residential	195	152	346	0.1338
Total	1,250	1,339	2,589	1.0000

(a) Customer Flow.

(b) Allocation based on Factor 1A for Residential and Non-Residential.

(c) Per 2010 I&I Study and allocation per prior cost of service study.

FACTOR 1A. ALLOCATION OF INFILTRATION AND INFLOW BY CUSTOMER CLASS.

Factors are based on a 1/3-2/3 weighting of flow and number of customers, as follows:

Customer Classification (1)	Total Adjusted Average Daily Flow 100 gallons (2)	Average Daily Flow Factor (3)	Weight (4)=(3) x 0.3333	Number of Service Equivalents (5)	Number of Customers Factor (6)	Weight (7)=(6) x 0.6667	Allocation Factor (8)=(4)+(7)
Residential	1,055	0.8443	0.2814	1,083	0.9078	0.6052	0.8866
Non-Residential	195	0.1557	0.0519	110	0.0922	0.0615	0.1134
Total	1,250	1.0000	0.3333	1,193	1.0000	0.6667	1.0000

PENNSYLVANIA AMERICAN WATER COMPANY
SADBURY WASTEWATER SSS OPERATIONS
FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 2. ALLOCATION OF COSTS ASSOCIATED WITH THE COLLECTION SYSTEM

Factors are based on peak daily flow for each customer classification.

Customer Classification (1)	Ave. Flow Consumption, 100 gpd (2)	Peak I&I Flow 100 gallons (a) (3)	Total Peak I&I And Average (4)=(2)+(3)	Allocation Factor (5)
Residential	1,055	3,259	4,314	0.8759
Non-Residential	195	417	611	0.1241
Total	1,250	3,676	4,925	1.0000

(a) Per I&I Study and allocation per 2010 cost of service study, allocated based on Factor 1A

PENNSYLVANIA AMERICAN WATER COMPANY
SADSURY WASTEWATER SSS OPERATIONS
FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 3. ALLOCATION OF CAPITAL COSTS ASSOCIATED WITH PROJECTED AVERAGE DAILY FLOW INCLUDING INFILTRATION AND INFLOW EXCLUDING BULK USERS

Factors are based on the projected average daily consumption for each customer classification.

Classification (1)	Total Average Daily Flow 100 gallons (2)	Direct I&I Gallons Per Day 100 gallons (a) (3)	Total Direct I&I And Average (4)=(2)+(3)	Allocation Factor (7)
Residential	1,055	1,187	2,242	0.8662
Non-Residential	195	152	346	0.1338
Total	1,250	1,339	2,589	1.0000

(a) Allocation based on Factor 1A.

FACTOR 3A. THIS ALLOCATION NOT USED.

PENNSYLVANIA AMERICAN WATER COMPANY
SADSBURY WASTEWATER SSS OPERATIONS
FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 4. ALLOCATION OF COSTS ASSOCIATED WITH CUSTOMER FACILITIES.

Factors are based on the estimated relative cost of customer facilities, as follows:

Customer Classification (1)	Number of Customers (2)	Service Equiv. Ratio (a) (3)	Service Equivalents (2)X(3)=(4)	Allocation Factor (5)
Residential	1,083	1.0	1,083	0.9078
Non-Residential	44	2.5	110	0.0922
Total	1,127		1,193	1.0000

(a) Based on ratio by class for Coatesville service area.

FACTOR 5. ALLOCATION OF COSTS ASSOCIATED WITH BILLING AND COLLECTING.

Factors are based on the number of customers.

Customer Classification (1)	Number of Customers (2)	Allocation Factor (3)
Residential	1,083	0.9610
Non-Residential	44	0.0390
Total	1,127	1.00000

PENNSYLVANIA AMERICAN WATER COMPANY
SADSBURY WASTEWATER SSS OPERATIONS
FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 6. ALLOCATION OF LABOR RELATED TAXES AND BENEFITS.

Factors are based on the allocation of direct labor expense.

Customer Classification	Direct Labor Expense	Allocation Factor
(1)	(2)	(3)
Residential	\$ 16,709	0.8762
Non-Residential	2,361	0.1238
Total	<u>\$ 19,070</u>	<u>1.0000</u>

FACTOR 7. ALLOCATION OF ORGANIZATION, FRANCHISES AND CONSENTS,
MISCELLANEOUS INTANGIBLE PLANT AND OTHER RATE BASE ELEMENTS.

Factors are based on the allocation of the original cost less depreciation other than those items being allocated, as follows:

Customer Classification	Original Cost Less Depreciation	Allocation Factor
(1)	(2)	(3)
Residential	\$ 7,045,987	0.8693
Non-Residential	1,058,960	0.1307
Total	<u>\$ 8,104,947</u>	<u>1.0000</u>

PENNSYLVANIA AMERICAN WATER COMPANY
SADSBURY WASTEWATER SSS OPERATIONS
FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 8. ALLOCATION OF INCOME TAXES AND INCOME AVAILABLE FOR RETURN.

Factors are based on the allocation of the original cost measure of value rate base as shown on the following pages and summarized below.

Customer Classification <u>(1)</u>	Original Cost Measure of Value <u>(2)</u>	Allocation Factor <u>(3)</u>
Residential	\$ 7,187,244	0.8694
Non-Residential	<u>1,079,369</u>	<u>0.1306</u>
Total	<u><u>\$ 8,266,613</u></u>	<u><u>1.0000</u></u>

FACTOR 9. ALLOCATION OF REGULATORY COMMISSION EXPENSES, ASSESSMENTS AND OTHER WATER REVENUES.

The factors are based on the allocation of the total cost of service, excluding those items being allocated.

Customer Classification <u>(1)</u>	Total Cost of Service <u>(2)</u>	Allocation Factor <u>(3)</u>
Residential	\$ 988,600	0.8743
Non-Residential	<u>142,173</u>	<u>0.1257</u>
Total	<u><u>\$ 1,130,773</u></u>	<u><u>1.0000</u></u>

FACTOR 9A. THIS FACTOR NOT USED.

PENNSYLVANIA AMERICAN WATER COMPANY
SADSBURY WASTEWATER SSS OPERATIONS
COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2021,
ALLOCATED TO CUSTOMER CLASSES

Account (1)	Factor Ref. (2)	Cost of Service (3)	Residential (4)	Non-Residential (5)
<u>RATE BASE</u>				
353.30 Land and Land Rights - Pumping	2	18,345	16,068	2,277
354.30 Structures and Improvements - Pumping	2	195,162	170,943	24,220
355.00 Power Generation Equipment	2	33,442	29,292	4,150
360.10 Force Mains	3	145,045	125,638	19,407
361.10 Gravity Mains	3	6,083,993	5,269,954	814,038
361.20 Manholes	3	847,522	734,123	113,398
363.00 Service Laterals	4	486,089	441,271	44,817
364.00 Flow Measuring Devices	2	62,509	54,751	7,757
371.00 Pumping Equipment	2	232,841	203,946	28,896
TOTAL SEWER UTILITY PLANT IN SERVICE		8,104,947	7,045,987	1,058,960
Other Rate Base Items:				
Cash Working Capital -Expenses	11	15,678	14,350	1,328
Cash Working Capital - Int and Div	7	(19,094)	(16,598)	(2,496)
Materials and Supplies	7	3,494	3,037	457
Acquisition Adjustment	7	248,046	215,626	32,420
Deferred, Accrued and Prepaid Taxes	7	(86,458)	(75,158)	(11,300)
Total Other Rate Base Elements		161,666	141,257	20,409
Total Original Cost Measure of Value		8,266,613	7,187,244	1,079,369

PENNSYLVANIA AMERICAN WATER COMPANY
SADSBURY WASTEWATER SSS OPERATIONS
FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 10. ALLOCATION OF ADMINISTRATIVE AND GENERAL EXPENSES

Factors are based on the allocation of all other operation and maintenance expenses excluding purchased water, power, chemicals and waste disposal.

Customer Classification <u>(1)</u>	Operation & Maintenance Expenses <u>(2)</u>	Allocation Factor <u>(3)</u>
Residential	\$ 29,681	0.9107
Non-Residential	<u>2,911</u>	<u>0.0893</u>
Total	<u><u>\$ 32,592</u></u>	<u><u>1.0000</u></u>

FACTOR 11. ALLOCATION OF CASH WORKING CAPITAL

Factors are based on the allocation of operation and maintenance expenses including purchased water, power, chemicals and waste disposal.

Customer Classification <u>(1)</u>	Operation & Maintenance Expenses <u>(2)</u>	Allocation Factor <u>(3)</u>
Residential	\$ 102,040	0.9153
Commercial	<u>9,443</u>	<u>0.0847</u>
Total	<u><u>\$ 111,483</u></u>	<u><u>1.0000</u></u>

PENNSYLVANIA AMERICAN WATER COMPANY

WATER ACT 11 ALLOCATION TO WASTEWATER - 2021

	RES	COM	IND	MUNI	LGE IND	BULK	PUBLIC FIRE	TOTAL
WW EXCLUDING SADBURY AND EXETER	\$ 1,825,706	\$ 424,038	\$ 22,451	\$ 92,069	\$ 63,860			\$ 2,428,123
SADBURY	768,101	108,852	-	1,579				878,532
EXETER	3,135,053	541,079	346,219	37,022				4,059,372
SCRANTON	5,014,183	2,825,725	5,012	331,353	280,774			8,457,047
MCKEESPORT	9,603,398	2,631,170	-	308,297	-	3,001,645		15,544,509
KANE	1,154,836	265,145	16,117	47,885				1,483,984
TOTAL ACT 11 FROM WATER	\$ 21,501,277	\$ 6,796,008	\$ 389,799	\$ 818,205	\$ 344,634	\$ 3,001,645	\$ -	\$ 32,851,567
REALLOCATED BULK TO RESIDENTIAL	\$ 2,298,198	\$ 629,668		\$ 73,779		\$ (3,001,645)		-
TOTAL FROM WATER BY CLASS	\$ 23,799,475	\$ 7,425,676	\$ 389,799	\$ 891,984	\$ 344,634	\$ -	\$ -	\$ 32,851,567
STEELTON	647,477	73,383	853,411	12,082			190,476	1,776,829
TOTAL FROM WATER	\$ 24,446,952	\$ 7,499,059	\$ 1,243,210	\$ 904,066	\$ 344,634	\$ -	\$ 190,476	\$ 34,628,396

WATER ACT 11 ALLOCATION TO WASTEWATER - 2022

	RES	COM	IND	MUNI	LGE IND	BULK	Public Fire	TOTAL
WW EXCLUDING SADBURY AND EXETER	\$ 2,644,573	\$ 605,588	\$ 32,811	\$ 131,971	\$ 91,519			3,506,461
SADBURY	722,375	102,811	-	1,519	-			826,706
EXETER	2,865,871	501,058	318,299	34,751	-			3,719,978
SCRANTON	6,392,279	3,650,305	6,493	430,141	364,344			10,843,561
MCKEESPORT	9,020,183	2,465,611	-	291,612	-	2,842,015		14,619,421
KANE	1,293,204	292,114	17,756	52,757				1,655,831
TOTAL ACT 11 FROM WATER	\$ 22,938,485	\$ 7,617,485	\$ 375,359	\$ 942,751	\$ 455,862	\$ 2,842,015	\$ -	\$ 35,171,958
REALLOCATED BULK TO RESIDENTIAL	\$ 2,176,668	\$ 594,979	\$ -	\$ 70,369		\$ (2,842,015)		-
TOTAL FROM WATER BY CLASS	\$ 25,115,153	\$ 8,212,464	\$ 375,359	\$ 1,013,120	\$ 455,862	\$ -	\$ -	\$ 35,171,958
STEELTON	506,508	48,718	647,219	9,390			149,013	1,360,848
TOTAL FROM WATER	\$ 25,621,661	\$ 8,261,182	\$ 1,022,578	\$ 1,022,510	\$ 455,862	\$ -	\$ 149,013	\$ 36,532,806

	Bulk
FROM SADBURY TO WW EXCL. - BULK 2021	\$ 671,275
FROM SADBURY TO WW EXCL. - BULK 2022	\$ 699,423

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket Nos. R-2020-3019369 (Water)
v.	:	C-2020-3019751
Pennsylvania-American Water Company	:	R-2020-3019371 (Wastewater)
	:	C-2020-3019754

VERIFICATION

I, Scott J. Rubin, hereby state that the facts set forth in my Direct Testimony, OCA Statement 1, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 8, 2020
*295174

Signature:



Scott J. Rubin

Consultant Address: 333 Oak Lane
Bloomsburg, PA 17815